food & beverage REPORTER

MARCH 2023

PUT AN END TO 'WRAP RAGE'

Choose the right closure for your food packaging

The Future of Flour

Win. Don't Bin Food Waste Action Week

Flavour Innovation

Can long life packaging help counteract South Africa's Energy Crisis?

- Thermoplastics in food packaging
- Food contact packaging under scrutiny
- Trade mark dispute over container shape
- How loadshedding affects SA plastics industry

Packaging & processing FOR THE FOOD INDUSTRY

VISIT…

CONVEY

FLEXI-DISC® Tubular Cable Conveyors gently slide fragile foods and non-foods through smooth stainless steel tubing routed horizontally, vertically or at any angle, over short or long distances, dust-free. Single or multiple inlets and outlets.

DUMP

FLEXICON® Manual Dumping Stations allow dust-free dumping of bulk material from bags and other containers. Automatic reverse-pulse filter cleaning allows continuous, efficient operation. Available with integral bag compactors for total dust containment.

UNLOAD

BULK-OUT® Bulk Bag Dischargers unload free- and non-free-flowing solids from bulk bags automatically. Allows untying, discharging, retying and collapsing of bulk bags—all dust-free. Available with weigh batching controls.

CONDITION

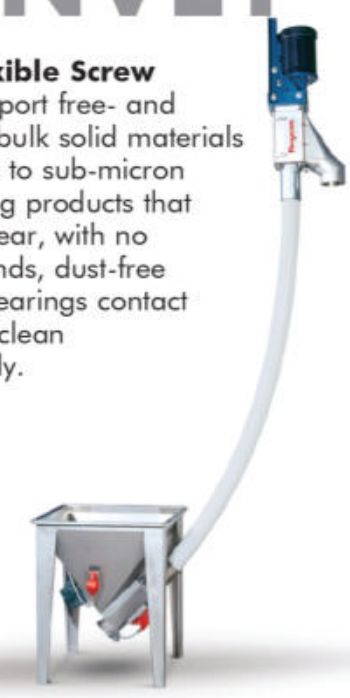
BLOCK-BUSTER® Bulk Bag Conditioners loosen materials that have solidified during storage and shipment. Variable height turntable positions bag for hydraulic rams with contoured conditioning plates to press bag on all sides at all heights.

FILL

SWING-DOWN®, REAR-POST and TWIN-CENTREPOST™ Bulk Bag Fillers can fill one bulk bag per week or 20 per hour at the lowest cost per bag. Numerous performance options. Available to industrial or sanitary standards.

CONVEY

FLEXICON® Flexible Screw Conveyors transport free- and non-free-flowing bulk solid materials from large pellets to sub-micron powders, including products that pack, cake or smear, with no separation of blends, dust-free at low cost. No bearings contact material. Easy to clean quickly, thoroughly.



CONVEY

PNEUMATI-CON® Pneumatic Conveying Systems move a broad range of bulk materials over short or long distances, between single or multiple inlet and discharge points in low to high capacities. Available as dilute-phase vacuum or positive pressure systems, fully integrated with your process.

TIP

TIP-TITE® Container Tippers dump bulk material from drums (shown), boxes or other containers into vessels up to 3 metres high. Dust-tight (shown) or open chute models improve efficiency and safety of an age-old task.

SUCCEED

The FLEXICON® Lifetime Performance Guarantee* assures you of a successful result, whether you purchase one piece of equipment or an engineered, automated plant-wide system. From initial testing in large-scale laboratories, to single-source project management, to after-sale support by a worldwide network of factory experts, you can trust your process—and your reputation—to Flexicon.

SOUTH AFRICA
sales@flexicon.co.za
+27 (0)41 453 1871

UK +44 (0)1227 374710
USA +1 610 814 2400
AUSTRALIA +61 (0)7 3879 4180
SPAIN +34 930 020 509
FRANCE +33 (0)7 61 36 56 12
GERMANY +49 173 900 78 76
SINGAPORE +65 6778 9225
INDONESIA +62 81 1103 2400
MALAYSIA +60 10 282 2400

Flexicon® .co.za

©2022 Flexicon Corporation. Flexicon Corporation has registrations and pending applications for the trademark FLEXICON throughout the world.
*See full guarantee for details.

KK-0360

fbr Contents

04 Industry updates

06 Budget briefs

08 The future of flour

11 Beer into bread

12 Back to our roots

14 Food waste in action

16 Real-time PCR for safer food

16 The evolution of *listeria*

Packaging & processing FOR THE FOOD INDUSTRY 17

From the editor

This month's calendar has been a full one, as we celebrate World Flour Day and Food Waste Action Week – read more about those topics on pages 8 and 14. Off the back of the recent budget speech, we also have some insights and opinions to share from different sectors of industry.

One of the other topical issues that is front and centre in the food industry right now is that of EPR and recycling, with organisations and industry bodies asking if we are getting it right, and cautioning against the risk of greenwashing.

Patricia Schröder, spokesperson for the producer responsibility organisation (PRO) Circular Energy, says ensuring that producers are compliant with regulations is not enough to establish an effective EPR system in the country.

"The circular economy needs both producers who are committed to meeting regulations and a system of service providers with the necessary skills and resources to carry out the work on the ground.

If all aspects of the system are not in place, EPR can end up facilitating greenwashing by enabling companies to meet regulatory requirements on paper only."

"Service providers are needed to ensure that waste is collected and then recycled as it should be and that we develop and expand the country's recycling and waste management capacity. For example, the intention to recycle is void if consumers return used products only for most of the material they contain to ultimately end up in a landfill because the technology or capacity to recycle it is not available," Schröder says

Greenwashing is essentially when a company or organisation spends more time and money on marketing themselves as being sustainable than on actually minimising their environmental impact. It's a deceitful advertising method to gain favour with consumers who choose to support businesses that care about bettering the planet.

Earth.org

Read the article on page 27 to find out more on the warning from SABS to manufacturers that wish to claim their plastic packaging is degradable, that they need to ensure their packaging complies with the relevant testing and certification requirements.

Our Packaging and Processing section has some other great reads this month – who knew "wrap rage" was a thing amongst consumers, or that the shape of a bottle could be the source of a trade mark dispute. You can read more about those on pages 18 and 32.

Food grade packaging, the link between product packaging and the energy crisis, and a peek at the DOW Packaging Award winners rounds off this month's edition.

As always, we hope you enjoy the magazine.

Warm wishes

Bridget

You can reach me at: **editor@fbreporter.co.za**

food & beverage REPORTER

Managing Editor
Bridget Day
editor@fbreporter.co.za
+44 7398 532239

Advertising
Wendy Breakey
wendy@fbreporter.co.za
083 653 8116

Design & Layout
Jane Prinsloo

Published by
Food & Beverage Reporter
18 Miller Road
Pierre van Ryneveld
0157

www.fbreporter.co.za

foodfocus THE RIGHT WAY

In partnership with Food Focus
www.foodfocus.co.za

SAAFFI

Endorsed by the SA Association of the Flavour &Fragrance Industry.

SAAFoST SOUTH AFRICAN ASSOCIATION for FOOD SCIENCE & TECHNOLOGY

Endorsed by SAAFoST

We bring colour into view!

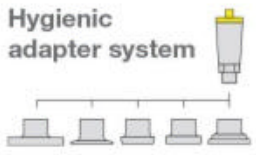
Compact pressure sensors and switches with 360° custom-colour status display

256 colours
Individually selectable:

- Measurement in progress
- Sensor switching
- Process malfunction

Compact design

Hygienic adapter system



IO-Link

Adjustment via smartphone

www.vega.com/vegabar

Looking Forward VEGA

Danone Southern Africa Appoints MD

Danone Southern Africa announced the appointment of Hervé Orama Barrere as the new Managing Director, effective as of 1 January 2023.

Barrere led the Danone Nigeria business as the Managing Director in 2017, as well as in Algeria in 2019. During his time with Danone previously, he established solid retail foundations for a more sustainable and profitable business for the Early Life Nutrition and Essential Dairy Products categories across the African regions assigned to him.

Barrere is no stranger to business on the African continent, with rich insights, experience and on the ground knowledge of building brands in Africa – having worked across the Congos and Central Africa regions.

Barrere will be responsible for the continued success and growth of Danone Southern Africa and its full brand portfolio including NutriDay, Ultra Mel, Yogi Sip, Inkomazi, DanUP and more recently Alpro, a plant-based portfolio.

"In 2023 we will aim to reinforce our market position and continue to bring health to more South Africans, through food," says Barrere.

Tongaat Hulett Appoints Acting CEO

Tongaat Hulett has announced the appointment of Dan Marokane as the group's acting Chief Executive Officer (CEO), taking over from current CEO Gavin Hudson, who left the group at the end of February.

He joined Tongaat Hulett in 2018. He was the Chief Business Transformation Officer and has been a key member of the management team which led the turnaround journey of the company. He played an important role in internal cashflow optimisation programmes and the management of the company's asset disposals.

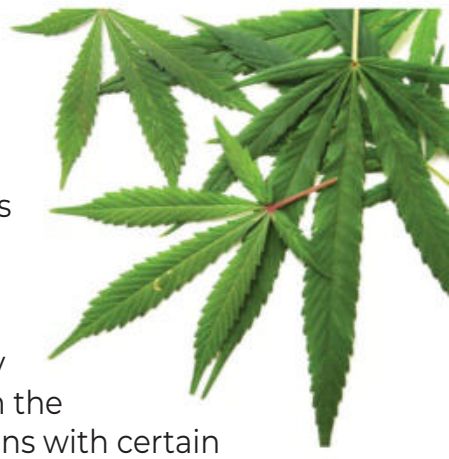
Mr Marokane has a BSc Chem Eng, MSc Pet Eng and an MBA and has held various senior executive roles over the past 20 years in the oil and gas, power and agro-processing industries.

Tiger Brands Appoints Financial Director

Tiger Brands has announced the appointment of Pieter Craill as Financial Director: Cereals from 1 February 2023

Pieter has extensive experience in financial management within the FMCG sector. His most recent role was as Head of Finance and Administration at Aldor Africa, known for confectionery products, and he was previously the CFO at Mister Sweet.

Global News



After careful review, the U.S. Food and Drug Administration confirms that the existing regulatory frameworks for foods and supplements are not appropriate for cannabidiol.

The FDA says that the use of CBD raises various safety concerns, especially with long-term use. Studies have shown the potential for harm to the liver, interactions with certain medications and possible harm to the male reproductive system. CBD exposure is also concerning when it comes to certain vulnerable populations such as children and those who are pregnant.

A new regulatory pathway is needed to provide safeguards and oversight to manage and minimize risks related to CBD products. In addition, a new pathway could provide access and oversight for certain CBD-containing products for animals.

The FDA's existing foods and dietary supplement authorities provide only limited tools for managing many of the risks associated with CBD products. Under the law, any substance, including CBD, must meet specific safety standards to be lawfully marketed as a dietary supplement or food additive.

CBD also poses risks to animals, and people could be unknowingly exposed to CBD through meat, milk and eggs from animals fed CBD. Because it is not apparent how CBD products could meet the safety standard for substances in animal food, the FDA also rules out the use of CBD in animal food. A new regulatory pathway could provide access and oversight for certain CBD-containing products for animals.

The FDA will continue to take action against CBD and other cannabis-derived products to protect the public, in coordination with state regulatory partners, when appropriate. However, the agency will be working with Congress to develop a cross-agency strategy for the regulation of these products to protect the public's health and safety.

PepsiCo South Africa focusing on food security

PepsiCo South Africa, and the Department of Agriculture, Land Reform and Rural Development (DALRRD) have engaged various stakeholders on potential solutions to address challenges such as climate change, the global food crisis, and rising input costs.

In February, the FAO, IMF, World Bank Group, WFP, and WTO released a joint statement calling for a mitigation of the worsening of the food and nutrition security crisis and added that countries should balance short-term urgent interventions with longer term resilience efforts[1].

At a round table event in Cape Town earlier this month, Minister Thoko Didiza of DALRRD spoke on the importance of creating space and opportunity for dialogue amongst key stakeholders across the food value chain: "You cannot talk about nutrition without looking at all the food systems that feed into the value chain".

Also speaking at the event, Eugene Willemsen, the CEO of PepsiCo Africa, Middle East and South Asia, spoke of the company's aim to enhance planet and people: "As part of our PepsiCo positive transformation, we have set a food security goal to increase access to nutritious food for 50 million people globally by 2030, through our Food for Good security program and the expansion of our affordable nutrition offerings".

PepsiCo also supports the Zero Hunger Private Sector Pledge, which emerged from the UN Food Systems Summit, pledging $100 million in positive agriculture and food security initiatives by 2030 across Africa, Asia, Latin America, including South Africa. It covers initiatives such as training farmers and helping strengthen agricultural production with plans to increase crop yields and help ensure more resilient food supply.

A sustainable food system delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generation is not compromised. This means that it is profitable throughout, ensuring economic sustainability, it has broad-based benefits for society, securing social sustainability, and that it has a positive or neutral impact on the natural resource environment, safeguarding the sustainability of the environment.

"We are working collectively across sectors within the value chain as well as with public and private partnerships to drive meaningful change in agriculture as well as in agro-processing. The aim is to drive access to nutrition and help leverage our global capabilities in collaboration with local partners in new ways. But this is just one step in a long journey toward realising zero hunger and ensuring a sustainable future for all," added Willemsen.

Willemsen said that geopolitical issues have exacerbated the communities we serve are free from hunger and malnutrition. "This is at the very heart of our accessible nutrition efforts," concludes Willemsen.

[1]Source: https://www.worldbank.org/en/topic/agriculture/brief/food-security-update

Tate & Lyle rebrands

The rebrand of Tate & Lyle supports the company's transformation of its business to become a purpose-led, growth-focused speciality food and beverage solutions business.

At the heart of the brand, is the company's new narrative – Science\ Solutions \ Society, the promise Tate & Lyle makes to its customers and the way in which it will deliver its purpose.

"It's through R&D and innovation – our understanding of the science of food – that we have the greatest impact, not only by supporting healthy living through our ingredients and solutions but because, by growing our business, we can also have a wider positive impact on our communities and the planet." Says Nick Hampton, Chief Executive, Tate & Lyle.

"We are really excited to be able to share our new brand today – it truly reflects who we now are as a business and our ambition for the future, building on over 160 years of innovation," he adds.

According to Helen Bass, Global Head of Marketing & Insights, Tate & Lyle "The incredible power of having an 'and' – an ampersand – in our name...is not just distinctive but communicates that Tate & Lyle can, and does, bring more. It shows a continuous curiosity and restlessness to solve challenges, go the extra mile and exceed its own and others' expectations in the broader world. Therefore the 'power of and' became a key part of the design."

"This rebrand is not just a new logo or colours, it is a beacon of change for our organisation, creating a distinctive new brand, one powerful narrative, that stands out and brings it to life for ourselves and our customers."

Budget Briefs

Diesel fuel levy refund – for some

To ease the impact of the electricity crisis on food prices, the refund on the Road Accident Fund levy for diesel used in the manufacturing process, such as for generators, will be extended to manufacturers of foodstuffs. This takes effect from 1 April 2023 for two years.

However, this was not the case for food retailers. The CEOs from Pick n Pay, SPAR and Shoprite Checkers have appealed to government to extend the diesel fuel levy refund to food retailers too, since food stores are providing essential services and products to consumers.

They warned that although they are doing their best to absorb the costs of the diesel used to keep refrigerators running and stores operational, with prices rising into the billions they may not be able to continue to carry the cost for the consumer.

Minimum wage increase threatens food and job security

Agri SA is concerned by the announcement of a 9,6% increase in the national minimum wage. Any increase in costs will further strain already hard-pressed farmers. As the sector battles to contain the costs associated with loadshedding, crumbling infrastructure and high input costs, this increase will further undermine food security and put much-needed jobs on the line.

The increase continues a trend of above-inflation increases for more than a decade. Whereas farmers were previously in a position to absorb these increases thanks to the sustained growth in a number of agricultural industries, that period is now over. The sector faces extreme headwinds, which on their own threaten food security in the coming years.

Notwithstanding the challenges that the sector faces, Agri SA made a submission proposing a CPI minus 2% increase in the national minimum wage. This proposal recognised the financial pressure on workers in this inflationary environment, but also addressed the reality of farmers' inability to continue to absorb above-inflation increases. That government has ignored this balanced position, is a devastating blow not only for the sector but also for the consumers who will eventually see this increase reflected in their food expenditure.

Agri SA and its members are committed to preserving the country's food security. For this reason, the organisation will continue to engage government on the critical challenges facing the sector. Agri SA's hope is that its warnings will be heeded in future, so that farmers, workers, and consumers don't pay the price for policy that undermines the sustainability of the sector and the nation's food security.

Relief for the Sugar Industry

In his recent budget speech, Finance Minister Enoch Godongwana announced the government's decision to keep the Health Promotion Levy (HPL) unchanged for the following two fiscal years to accord the sugar industry space to pursue diversification.

The announcement was warmly received by The South African Sugar Association (SASA). "We are grateful to government for acceding to our request for a moratorium on any increases to the HPL while we vigorously pursue product diversification opportunities identified during Phase 1 of the all-important Sugarcane Value Chain Master Plan to 2030," says Trix Trikam, SASA Executive Director.

He adds: "These diversification projects have the potential to change the trajectory and performance of the industry. The HPL remaining unchanged gives us time to achieve a just transition of the sugar sector into new activities and industries."

The sugar industry supports 65 000 direct jobs and 270 000 indirect livelihoods in deep rural communities of KwaZulu-Natal and Mpumalanga. At least one million people are dependent on the cane growing and milling activities of the industry. The HPL (sugar tax) has had a deleterious impact on the industry since its introduction in April 2018, leading to multi-billion-rand revenue loss, thousands of job losses, and permanent closure of two sugar mills in KwaZulu-Natal.

2023 Sin Tax Increases

A can of beer, 340ml –10 cents increase.
A bottle of wine, 750ml – 18 cents increase.
A bottle of spirits, 750ml –R3.90 increase.
A cigar, 23 grams – R5.47 increase.
Pack of 20 cigarettes – 98 cents increase.

Budget Briefs

Relief for the Wine Industry

The South African wine industry is relieved at the result of the budget figures; with increases of 4.9% on wine and brandy and only 0.7% on sparkling wine. This follows the industry's call to keep rates low, enabling South African sparkling wine to be aligned with international excise tax benchmarks.

"We are grateful that Government has responded to the plea of our industry," says Vinpro MD, Rico Basson. "In discussions with Treasury over the past few months, Vinpro and other industry organisations have emphasised the dire position of the South African wine industry and requested that inflation-driven excise taxes be introduced. This together with other interventions as agreed in the Agriculture and Agro-Processing Master Plan (AAMP) will enable the wine industry to fulfil the important role it plays in the economy of the country and in our society."

The halo effect of wine and its importance for tourism, wine exports and the brandy industry should not be underestimated either. South African wine and wine farms play a key role in tourism.

The wine industry contributes R55 billion to the GDP (before COVID) and wine also makes a major contribution to the export market with 50% of South African wine – worth R10.2 billion – being exported to more than 130 international markets.

"In light of the serious financial position our industry is currently in, we now need stability, policy certainty and financial relief and support. The levying of excise duty increases in line with our request contributes to this and offers some relief to many wine businesses who are experiencing major challenges due to the smaller forecasted harvest, the energy crisis, supply stocks which are adversely affected by the ongoing war in Ukraine and double digit increases in input costs." says the organisation.

Kwanalu Echoes Concerns

Agri SA is not the only organisation to voice its concerns.

The announcement of the increased National Minimum Wage by 9.6% for farm workers from 1 March 2023 by the Minister of Employment and Labour on Wednesday, 22 February, will place tremendous strain on an already difficult economic climate for the country's agricultural sector, says the KZN Agricultural Union, Kwanalu.

"The increase in the national minimum wage will have a negative impact on the livelihoods it aims to serve, as the agricultural sector struggles to keep afloat following other recent, key contributing factors," said Kwanalu CEO, Sandy La Marque.

Kwanalu's statement follow statistics shared with the Commission by Kwanalu, which were compiled from Department of Labour Quarterly Statistics and Annual Reports, as well as submissions from Kwanalu's member survey which also included all the commodity groups in KZN.

"These statistics show that specific pressures have, year on year, resulted in a decrease in agricultural employment since 2019 in KZN," said La Marque.

The pressures outlined in Kwanalu's report include an increasingly narrow economic production climate, an abnormally high cost of inflation when compared to other sectors due to the nature of inputs, severe incidences of flooding, the impact of the July 2021 unrest, Foot and Mouth disease, deteriorating road and infrastructure conditions, and the significant impacts of the ongoing and increased loadshedding schedules.

"Kwanalu believes that there is insufficient evidence to equitably enforce a greater than Consumer Price Index (CPI) inflation on rural employment, a 0% base rate should have been the departure point. This is relevant as the rural cost of living is lower than the urban cost of living, so it may well be prudent to give agriculture its own minimum wage determination. Kwanalu prior to the announcement, recommended that an increase of less than CPI is more realistic of the industry position and the impacts on livelihoods of rural employees and dwellers. We will continue to explore options to address the high increase and its impacts," said La Marque.

The KwaZulu-Natal Agricultural Union, Kwanalu, is a representative organization voice of the rural and agricultural sectors in the province. Its viewpoints are based on submissions from its members, and it is committed to a sustainable and profitable future for Agriculture within KwaZulu-Natal and greater South Africa.

For more information on Kwanalu visit https://www.kwanalu.co.za/

The Future of Flour

By Jesse Kelfkens

The fourth World Flour Day will be celebrated on 20 March 2023, and the theme is "The Future of Flour." This year the organisers are asking this question of the global flour community... "How do you see the future?"

The future of flour encompasses an array of topics. From grain cultivation to transit, milling, processing, to product development and even research, education, and employment.

While flour is the primary constituent in bread which forms a staple for many communities, many other products contain flour as a fundamental element. As a source of carbohydrates and other nutrients, it provides structure and texture to baked products. Depending on the sort of flour, it could also contribute protein, fibre, vitamins, and minerals.

South Africa

Wheat is primarily a winter crop, with the majority harvested in the Western Cape during its winter rainfall season. Summertime production however still occurs in the Free State and Northern Cape.

South Africa imported approximately 30% of its wheat from Russia and Ukraine in 2019 and 2020. This fell just short of 10% in 2021. These figures vary depending on supply and comparable costs, however, over the past five years, it has averaged just over 30% from the combination of Ukraine and Russia.

Ukraine's conflict threatened to interrupt these supplies, and challenges with wheat supply have pushed global prices to a new high since 2008. Although the region is a significant provider, South Africa also imports wheat from other regions, such as the EU, Argentina, and Brazil.

The Ukraine conflict has increased the degree of concern in the grain market and has impacted food price inflation, also affecting the South African market.

A weakened rand is another setback for wheat prices, as South Africa must purchase wheat in foreign currency. Additionally, the continuing rise in oil prices makes petrol and diesel costs higher, thus making transporting and harvesting wheat more expensive.

Since Russia exports roughly 14% of the world's chemical fertilisers, this is another cost factor which impact on the affordability of wheat and the milling/baking sector.

Given that the costs of wheat, manufacturing, and transportation are still high, and economic pressure is continuing, it is likely that bread prices will continue to rise.

Alternative Flours

Flour is a staple that needs to be safe and affordable for all, so sourcing other alternatives to wheat is a necessity in light of the pressures on the wheat market.

In addition to reduced access to wheat, other causes for the increase in alternative flours, such as almond and rice flour include:

1. Individuals still 'stress bake' as a result of the ongoing stresses.
2. As the impacts of the climate catastrophe become more visible around them, people are searching for more environmentally responsible alternatives.

3. Consumers are seeking and willing to pay extra for healthier, more nutritionally valuable options.

To reduce food waste, some bakers use flour made from human consumption by-products. For example, watermelon seeds, can be ground into flour and contain a high level of iron, magnesium, and zinc. Watermelon seed flour has become more popular due to its unique flavour and crop diversity, supporting regenerative agriculture.

Unlike wheat flour supply and the repercussions of the Ukrainian war, other plant-based ingredients for substitute flour, such as nuts or legumes, are not equally impacted. This is not to say they are immune to the effects of climate change.

Another illustration is chickpea flour, which is made in a manner comparable to wheat flour. Chickpea flour is a valuable ingredient in the manufacture of gluten-free flours, a suitable substitute for bread and pizza dough. However, when used to make layer cakes, the flour decreased density, cake volume, and uniformity, demonstrating that its use is limited.

Customers seeking gluten-free alternatives now have more access to substitute flours. Gluten generally refers to the proteins that are present in wheat, rye, barley, and other cereal grains. It functions as a binding, keeping food together and providing a "stretchy" and "elastic" quality. As a result, gluten holds carbon dioxide, which allows bread and other cooked products to rise. Consequently, the substitution of gluten-free alternatives can pose difficulties for the development of formulations.

Gluten-free made products are also difficult to produce because accessible manufacturing equipment cannot always handle gluten-free flour, or issues arise from ensuring machinery stays completely gluten-free.

Making gluten-free bread, for instance, in the same plant as gluten-containing bread necessitates stringent sanitation controls. This ultimately costs money that many small businesses cannot afford.

Composite flours

Composite flours are a blend of starch-rich tubers (e.g., cassava, yam, sweet potato) and/or protein-rich flours (e.g., soy, nut) and/or cereals (e.g., maize, rice, millet, buckwheat), either including or excluding wheat flour. In other terms, composite flour is constructed by combining various types of flour to produce flour with desired qualities or characteristics for particular applications. For instance, composite flour may be used to develop more nutritious bread or to soften the texture of a pastry. Consequently, the precise proportions of each variety of flour utilized can vary depending on the intended outcome.

Composite flour is becoming more common as a staple food in nations, particularly in regions where wheat flour is not easily accessible or affordable.

In fact, Mühlenchemie, one of the world's leading companies in the field of flour treatment has established an award for research into composite flour, to mark their 100th anniversary. This innovation award recognizes solutions around the production and processing of non-wheat flours and their blends with wheat flour, in particular those using local raw materials.

Innovation Awards

Focusing on wheat alternatives, Mühlenchemie are looking for innovation that answers these key questions:

- What local crops have the ecological, economic and technical potential to partially or completely replace wheat in bread and pasta?
- How sustainable is their production, and how do they need to be processed in order to be useful for bakers and pasta-makers?
- How can they be standardized?
- How do they affect production processes and final product quality?
- What about nutritional effects?
- What new product developments are possible with composite flour?

Submissions closed in January, but it will be interesting to watch out for the results of the award winners, which will be announced in June 2023.

Find out more about these developments

Loadshedding Issues

As we know, economic and food systems are being severely impacted by loadshedding. This was affirmed by the Bureau for Food and Agricultural Policy (BFAP) who cautioned of the repercussions of loadshedding on the South African food and agricultural industries in its December "Food Inflation Brief."

Loadshedding raises expenses both directly (by limiting production and necessitating alternate power investments) as well as indirectly (seen in the increased wastage and spoilage within food chains). According to financial findings from several food businesses, fuel expenses to operate generators during loadshedding are also surging. These expenses cannot be absorbed by the supply chain, so they are largely transferred to customers.

With increasing supply prices in the bakery sector, load shedding could mean closure for many businesses. Bread baking is a high-volume, low-margin operation that is extremely susceptible to volume declines or price hikes. Since the flour milling process is just as specific and energy demanding, the sector is likely to face comparable problems.

The primary issue facing the bakery sector is escalating input expenses. Among these is the increasing flour (raw material) prices, electricity prices, fuel costs, load shedding, infrastructure (road) disintegration, and unrealistic union wage demands. The good news is that while insurance will no longer pay out if there are total outages due to the grid collapsing, if there is a power surge damage to household items it will still often be covered by insurers.

Electricity outages are placing a significant burden on the agricultural sector, raising concerns concerning food security in South Africa.

Overall, the flour industry faces several challenges that can impact its production, supply chain, and profitability. Companies need to be aware of these challenges and work to mitigate their impact to remain competitive and meet the needs of consumers.

Consumer demand, technical ingenuity, and environmental concerns are likely to influence the future of flour, with an ongoing focus on health, sustainability, and quality.

References

1. https://worldflourday.com/visions/
2. https://edition.pagesuite.com/html5/reader/production/default.aspx?pubname=&edid=d2ff03b9-3e7b-4959-b7e1-8018aed26c7f
3. https://www.news24.com/fin24/economy/explainer-this-is-why-sa-bread-prices-will-be-hit-by-the-russia-ukraine-conflict-20220226
4. https://www.britannica.com/topic/flour
5. https://in-bakery.com/the-future-of-flour/
6. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4444897/#:~:text=Composite%20flours%20are%20only%20a,certain%20groups%20of%20bakery%20products.
7. https://www.world-grain.com/articles/17927-muhlenchemie-creates-award-for-composite-flour-research
8. https://muehlenchemie.com/innovationaward/

Plant genetics company GDM to launch new GM- soy seeds in South Africa

Plant genetics company GDM has applied for registration in South Africa of 13 soy plant varieties after the country approved the use of a new GMO seed technology, according to company executives.

The expectation is that three of the 13 materials be pre-launched this year, as the firm hopes to bolster its South African business and prepare incursions throughout the region.

"Our target is that by 2027 more than 50% of the area planted with soybeans in South Africa contains our genetics," said Thiago Schwonka, the company's Africa, Asia and Europe business leader.

GDM's strategy reflects a recent push by African governments to tackle food insecurity by attracting plant genetics firms.

Schwonka said that while South Africa is the only African nation that recognizes intellectual property of autogamous, or self-fertilizing plants, other countries are keen to modernize their patent laws and join the International Union for the Protection of New Varieties of Plants (UPOV).

GDM also plans to launch non-GMO wheat seeds in South Africa shortly. By 2027, it wants to achieve a 20% share of the wheat seed market there, the executives said.

All the 13 materials GDM plans to register in South Africa feature Bayer's (BAYGn.DE) INTACTA RR2 PRO GMO seed technology, designed to help soy plants resist caterpillars and the glyphosate weed killer.

South Africa's approval of that technology came in 2021, GDM said.

Joao Schechtel, GDM's product placement supervisor, noted much of South Africa's soy is used as cattle feed during the dry months of winter. He said corn remains South Africa's main crop, but added farmers may grow soy planting in corn areas because corn production costs are rising.

GDM also plans to launch non-GMO wheat seeds in South Africa shortly. By 2027, it wants to achieve a 20% share of the wheat seed market there, the executives said.

Beer into bread

Using food waste to feed the nation

According to a report released by Statistics South Africa, Measuring Food Security in South Africa: Applying the Food Insecurity Experience Scale, almost 23,6% of South Africans in 2020 were affected by moderate to severe food insecurity, while almost 14,9% experienced severe food insecurity.

Now Castle Lager has launched a first-of-its-kind innovation in South Africa using the by-products of its beer brewing process to produce bread that is high in fibre, sustainable and a source of protein. They are calling it "Bread of the Nation", and it is part of the brand's Better World Programme.

"For over 127 years, South African Breweries and Castle Lager have always represented the values of resilience and unity, bringing together South Africans, through our favourite pastimes." Says Castle Lager Brand Director, Wendy Bedforth.

"As a proudly South African brand, we are delighted to leverage our production process for the greater good that will fuel the everyday hard-working South African. Bread of the Nation forms part of Castle Lager's rebranding campaign to bring Mzansi's favourite brew closer to our communities. This campaign speaks to our commitment to using the power of our brand to reshape and rebuild a better South Africa."

Through their new initiative, Castle Lager will produce approximately 30 000 loaves for South African communities, which will be made by a bakery company called The Health Food Company using the protein rich by-product of beer brewing.

This innovation contributes meaningfully to the South African Breweries and Castle Lager's zero-waste and sustainability commitments and its ongoing drive to reduce carbon emissions and minimise the impact of operations on the environment. The excess grain by-product left over after the brewing process was previously sold to cattle farmers. Through this initiative, the by-product will now be repurposed for further impact for communities.

Bread of the Nation forms part of the brand's 'It's Within' campaign, which celebrates the shared values of courage and optimism that South Africans use to rise above their daily challenges and causes of hopelessness and pessimism.

Alan Browde: CEO and Founder SA Harvest, Mpho Tshukudu: Dietician and Wendy Bedforth: Brand Director: Castle Lager.

"What better way to bring this renewed hope than by using the goodness within South African Breweries and Castle Lager to fuel this South African spirit? Bread of the Nation represents innovation for good" Bedforth concludes.

To optimise the distribution of this bread mix, Castle Lager has teamed up with a non-governmental food-rescue organisation and hunger relief, SA Harvest, which will use its footprint and partnerships to distribute the bread.

SA Harvest's mission is to end hunger in South Africa, and it has delivered 38,6 million meals since its inception in October 2019 by rescuing 11,6 million kilograms of food that would otherwise go to waste. It has a network of over 200 beneficiary organisations around the country.

Alan Browde, CEO and founder of SA Harvest comments: "Over 20 million people in South Africa are classified as food vulnerable, while 10,3 million tonnes of food goes to waste every year. This initiative by SAB to utilise a by-product – something that would ordinarily be viewed as waste and end up contributing to climate change – and transforming it into a nutritious means of feeding those in desperate need, is an example of kind of innovation it will take to solve hunger in South Africa. We are delighted to partner with an organisation that shares our vision for reducing the environmental impact of food waste, and delivering nourishing food to the most vulnerable in our society."

The official launch of this initiative kicked off in Walkerville, south of Joburg, on 8 March. Castle Lager envisages running Bread of the Nation for three years to assess its feasibility.

Back to our Roots

Heirloom recipes to inspire flavour innovation in 2023

Kerry's Global Taste and Nutrition Charts profile the upcoming and emerging flavours for the coming year, as well as top mainstream and key tastes. This year they are predicting that flavours inspired by heirloom recipes, across generations of tradition globally, will drive food and beverage innovation.

Taste remains the top driver when it comes to food and beverage choices and in the coming year consumers will be motivated by simplicity, sustainability and meeting their nutrition goals. There will also be a rise in unconventional flavour pairings such as Sriracha Ginger Citrusade. The spiciness of ginger and chilli heat add different dimensions to the flavour. Across Asia Pacific, Middle East and Africa, we see interest in provenance, functional ingredients and flavours that tell a story.

In the coming year consumers will be motivated by simplicity, sustainability and meeting their nutrition goals.

Top insights for flavour innovation in 2023

Heirloom recipes... There will be a resurgence in age old cooking practices and heirloom recipes as consumers place more importance on tradition and provenance. Ingredients such as nutmeg, ashwagandha, Indian gooseberry and ancient grains are finding a new home across snack and beverage applications.

Indulgence .... Indulgence will take on a new meaning, with younger consumers in particular seeking mashups of familiar food and drinks that they grew up consuming combined with emerging new flavour tonalities. This trend is augmented by the influence of social media channels such as TikTok and Instagram.

Unconventional combinations.... There will be a hunger for unconventional combinations of traditional ingredients and emerging taste profiles from other regions, such as black sesame crusted meats, sriracha-spiced cocktails, green tahini, saffron and curry aioli, and a thirst for healthier beverages with functional ingredients such as ashwagandha.

Value.... In addition, consumers will be seeking value in 2023 as inflation hits home, but they will still gravitate towards products that allow permissible indulgence, still seeking simple flavours like cheddar cheese, caramel, and fudge across nostalgic favourites like cookies and salty snacks.

Harsch Koshti, regional Taste expert for Kerry Asia Pacific, Middle East & Africa, said: "More and more consumers are moving towards functionality and simplicity. This includes flavours that convey a halo of health, be it added functional ingredients or flavours that imply improved wellness. Health continues to be important, as seen in the rise of healthier snacking options, with less sodium and more protein-based launches. Even the Bakery segment is witnessing offerings with reduced sugar claims across key markets."

Sour Cream Sweet Potato Hummus

Consumers are moving towards functionality and simplicity. This includes flavours that convey a halo of health.

Commenting on these taste trends, Soumya Nair, Global Consumer Research and Insights Director at Kerry, said: "Flavours have a powerful way to convey a story – particularly when it comes to consumer trends and preferences. This year we will witness the resurgence of time-honoured traditions and heirloom recipes as consumers crave traditional tastes with new and emerging flavours. Comfort still reigns supreme – with peppermint, hazelnut, chocolate, cheese, chilli still dominating tastebuds. Whether a nostalgic treat, a comfort dish, or a healthy alternative consumers expect a greater variety of tastes in 2023."

Cheddar Pumpkin Ale Soup

Comfort still reigns supreme.

"Through our in-depth research and insights from our teams across the globe, we are seeing how trends are travelling the world – with Asian flavours such as Cardamom, Japanese Miso, Gooseberry and Hawthorn, reaching Europe and North America, while popular dishes in Europe such as Moroccan Tahini and Italian Bolognaise inspiring innovation in Asia Pacific. Consumers are travelling the world through taste, and we expect that interest and desire in authenticity to continue. "

The Kerry Taste and Nutrition Chart insights come from tracking menu trends, product launches and ingredient labels, from consumer preferences and scanning social media chatter; proprietary research and analysis of thousands of new product launches across the globe.

With the support of their insight teams, marketers, chefs, baristas, and nutritionists Kerry can make well-founded predictions about the future flavour and health ingredient preferences. Their charts focus on taste, nutrition, and ingredients, based on flavours and claims which have held sway for the last 5 years, those which were popular in the previous 3 years and then the fastest growing flavours of the last year, as well as predictions for the years ahead.

Find out more at www.kerry.com

Africa...

Kerry's charts cover the four phases of adoption, which are mainstream, key, up and coming and finally emerging flavours and claims. Their research for South Africa outlines some interesting emerging flavour choices for our region in the year/s ahead.

Some of the fastest growing **sweet flavours** include dragon fruit, clove, elderflower, matcha, moringa and rum.

The fastest emerging **salty snack flavours** include blue cheese, dukkah, pecorino cheese, sriracha, wasabi and Worcester sauce.

Top **savoury flavours** that are developing robustly are black bean, chickpeas, hummus, lemongrass, miso, paneer, seaweed, truffle and umleqwa.

Mainstream **water and cold beverage flavours** have moved away from the more predictable choices and the developing favourites include flavours such as aronia, blood orange, hibiscus, kombucha, pina colada, tequila and... rooibos tea!

The **dairy and hot category** has been dominated by familiar flavours in recent years. This is changing though, and some of the rising stars in this category are almond, cardamom, chamomile, Earl Grey, gingerbread, pumpkin spice and rosehip.

Download the Taste and Nutrition Charts

Blue Matcha and Elderflower Lemonade

Food waste in action

The third annual Food Waste Action Week took place from 6 - 12 March 2023. Their theme this year was **'Win. Don't Bin.'** and their focus was to demonstrate how valuable food is in our lives, how it unites people and how using up everything we buy saves money, time, and the planet.

With that in mind, out interest was piqued by the innovation from Finnish food tech SuperGround, with their one-of-a-kind food production solution which enables the use of up to 60% more food out of fish by using bones, scales, and other hard tissues in a sustainable and tasty way. Not only does this allow the utilisation of the whole fish, but it also reduced raw material waste, making the fish industry more efficient and sustainable by helping to reduce overfishing.

In 2022, Finnish food tech company SuperGround launched a unique and innovative food production technology. It enabled them to be the first to solve how the food industry can utilize chicken bones and their nutritional benefits in an unnoticeable way when producing poultry-based foods. Now, the company has done the same for fish. For the first time ever, everything except the guts can be used in producing tasty consumer-familiar fish foods.

Traditionally, after the fish fillets have been separated, the rest of the hard tissues, such as fish bones, skin, and scales, usually either go unused as a production side stream, are used as animal feed, or as a fertilizer and biofuel raw material. Depending on the fish species, around 20–60% of its net weight could previously not be used as food.

The number of these unused parts is especially high with smaller fish species, such as perch.

SuperGround's food production solution now enables the use of these previously unused hard tissues as a sole raw material in food production. It is estimated that around 20–60% more food can be produced this way from fish than previously possible.

"Humans have a long history of eating fish bones. Fish bones have been used as food previously, but now we make using them and other hard tissues as food more efficient, sustainable, and versatile. We want to encourage and enable companies to utilize the full potential of fish and all its precious and nutritious raw materials, which previously could not have been used as food. Now, the fish industry can simultaneously improve its efficiency and sustainability,

while consumers see the fish products they know and love becoming more nutritious, tasty, and sustainable. This way, customers can make more sustainable choices without changing their dietary habits," says Santtu Vekkeli, Founder and Chief Innovator of SuperGround.

More food out of fish with improved vitamin and calcium content

Apart from the guts, the whole fish can be inserted into SuperGround's food production machine. The efficient process softens and grinds the bones and other hard tissues, with no mass lost in the process. The outcome is fish mass that can be used in various ways.

Around 15–30% of the mass made from bones and other hard tissues can be added when, for example, manufacturing fish balls without affecting their taste. Similarly, up to 15% of the mass can be added or needled into fish fillet products such as fish sticks. The mass can also be used as broth or sauce. The mass enhances the taste and smooth mouth feeling of fish products.

Using hard tissues, such as fish bones, skin, and scales, also increases the nutritional value of fish products, since they include a higher volume of different vitamins, calcium, and good fats compared to fish fillets.

Due to two reasons, the nutritional potential of fish has not been truly unlocked previously. Firstly, an efficient process to soften hard tissues was non-existent. Furthermore, only SuperGround's heat treatment process, lasting around one minute, allows the preservation of precious vitamins and nutrients.

Unlocking the full potential of fish

SuperGround's food processing technology and solution help increase both the efficiency and sustainability of fish food production. With its technology, SuperGround wants to make the whole fish industry more sustainable by reducing environmental impacts, such as emissions and food waste.

The SuperGround Team

The fish and seafood industry, with its estimated annual revenue of US$611.80bn in 2023, is expected to grow by 6.23% annually during 2023–2027. At the same time, overfishing remains a major challenge. According to the Food and Agriculture Organization of the United Nations, around a third of global stocks are overfished, posing a threat to biodiversity and throwing ecosystems dangerously out of balance.

"In addition to plant-based alternatives, we need ready-to-use solutions that improve the sustainability of existing and popular food choices. And this is where we can contribute, simply because with our food production technology, more tasty fish products can be produced without increasing the use of fish and fishing altogether. Not using the full potential of fish in food production is a huge opportunity wasted – from the planet, sustainability, business, and taste possibilities aspects," Vekkeli concludes. SuperGround's food production technology and solution are available to fish product companies worldwide.

Find out more at **http://www.superground.com**

References

1. https://www.statista.com/outlook/cmo/food/fish-seafood/worldwide
2. https://www.fao.org/3/cc0461en/online/sofia/2022/status-of-fishery-resources.html

Real-time PCR for safer food

Real-time PCR methods for food testing and analysis are used for the detection and quantification of bacteria, viruses, animal species, GMOs and allergens. Real-time PCR detects and amplifies a target DNA sequence using specific oligonucleotide primers and fluorescence probes.

Hygiena Diagnostics offers real-time PCR cyclers designed and validated for use with foodproof kits for quality control in the food and beverage industry. Two Dualo 32® PCR cycler models are available. Dualo 32 is suitable for quality control in beer and beverage production. Dualo 32R is ideal for quality control of different parameters in the food and feed industry.

Dualo 32®

The Dualo 32 real-time PCR cycler is a flexible, robust, 32-well instrument in a convenient format for facilities with small to medium throughput and little lab space. Dualo 32 makes process and end-product quality control easy. For example, 31 obligate beer spoilers can be identified using the foodproof® Beer Screening Kit. (A selection of foodproof kits is available). The wide optical spectrum allows the flexible use of both hydrolysis and hybridization assay probes.

High-end PCR technology

Operating with high-end PCR technology, Dualo 32 delivers outstanding performance, reproducible results, with a higher dynamic range for quantification, and is ideal for maintaining consistent quality control during the production of your beverages. Offering a simple workflow, intuitive software, predefined protocols for all testing parameters, and clear data interpretation, make the Dualo 32 the perfect lab companion.

For more info, contact Frances Renwick:
frances.renwick@microsep.co.za

The Evolution of *Listeria*

The latest research and the risks

Recently published research in the Microbiology Spectrum journal has gained attention due to its discoveries on the shifting behaviour of some species of *Listeria* – raising the question of what this means for the food industry.

A team of researchers conducted the study using whole genome sequencing to analyse *L. innocua* and *L. welshimeri* samples, taken from butcheries, abattoirs, retailers, cold storage facilities, and processing facilities across South Africa.

The use of whole-genome sequencing offers genomic insights into *Listeria* spp, which can improve our understanding and reaction to pathogenic strains and the risks they bring.

According to the journal "This study provides genomic insights into the recently expanded genus in order to gain valuable information about the evolution of the virulence and stress tolerance properties of the genus *Listeria* and the distribution of these genetic elements pertinent to the pathogenic potential across *Listeria* spp. and clonal lineages in South Africa (SA)."

While *L. monocytogenes* are considered to be the food and food processing environments (FPE) contaminants, *Listeria* spp. can be used as indicator organisms for environmental sampling within a food environment, with their presence signalling that favourable conditions for the growth of pathogenic *Listeria* exists. Managing risk through environmental monitoring is key, allowing food facilities to identify and control niches and areas where biofilms could develop.

We contacted one of the authors of the study to find out more but were unable to get comment in time for publication. Watch this space for updates.

Comparative Genomics of *Listeria* Species Recoveredfrom Meat and Food Processing Facilities
Authors: T. Mafuna, I. Matle , K. Magwedere, R.E. Pierneef, O. N. Reva

You can view this here

PACKAGING & PROCESSING

18 Put an end to “Wrap Rage” Choose the right closure for your food packaging

20 Thermoplastics in food packaging. The pros and cons.

22 High-volume Open Chute Tipper from Flexicon

24 Under scrutiny. Food contact packaging.

27 SABS cautions against unverified claims of degradable plastics

28 Can long life packaging help counteract South Africa’s energy crisis

30 How loadshedding affects SA’s plastic industry.

32 Message in a bottle. Trademark dispute over container shape

35 New enterprise development for black-owned recycling business

36 DOW 2022 packaging industry award winners

Packaging & processing
FOR THE FOOD INDUSTRY

Put an end to ‘Wrap Rage’

Choose the right closure for your food packaging

The closure method you select is a crucial element to successful packaging. In the food and beverage packaging world, various closures are designed for specific uses based on product type, key ingredients, or distribution channel, and it can be difficult for businesses to decide which one is best for their products.

There are so many variations to closures that it can be a lot to take in. Here we unpack some of the latest trends in closures, and legislation about closures used in the FoodBev industry.

Convenient closures help eliminate “wrap rage”, a term used to describe what consumers experience frustration while opening packages, which often results in damage to both the product and its packaging and can even potentially cause injuries to consumers.

Child safety, openability, tamper evidence, anticounterfeit features, branding, and precise dispensing are important considerations when designing an innovative closure. Companies can also apply custom designs to certain closures to help them better express their brands, while at the same time adding easy access to their products for improved customer satisfaction.

Nampak Closures’ Snapcap and DBJ-N range of plastic closures

A comprehensive selection of closures in the nation is provided by Nampak Closures. It is supported by technology partnerships with Portola and Bericap International and hold food safety and quality accreditations HACCP and ISO 9001. Their Snapcap and DBJ-N range of plastic closures are suitable for both PET and HDPE bottles in the dairy and fruit juice sectors.

Nampak’s award-winning DBJ-N closure provides superior leak resistance and tamper proofing. The DBJ-N has a drop down band that once opened is forced down and away from the rest of the closure which visibly reveals any tampering or faults.

Its metal closures range of twist off and press twist closures is produced at the Cape plant. These are used for sealing foods and sauces that go into glass jars, such as baby food, jams, chutney, tomato sauce, beetroot and mayonnaise.

With the move away from cork to screw caps for sealing wine, Nampak Closures created a screw top closure to fit the iconic Graça bottle. The 30 x 50mm length recyclable aluminium screw cap with the 30 x 60mm wine finish (top and side seal, was a first for Nampak Closures and is unique to Graça. The new tamper-evident pack provided Distell with an impermeable screw cap eliminating the high risk of cork taint. The ability to reseal the wine has enabled more choice in portion control, as well as trust in the re-seal for later transportation.

African Closures offers rental of capping equipment

African Closures, a part of Polyoak Packaging, specializes in high volume closures with striking ornamentation and designs and manufactures totally recyclable plastic closures for food, beverage, and industrial applications. Its high speed injection and compression moulding facilities are located in Cape Town with extensive distribution networks into Africa. Its extended service includes the rental of capping equipment with the necessary technical field support, analytical testing and microbiological analysis, offered by its Quality Services division. Dedicated internal mould design, fabrication, and maintenance division, Mould Services, collaborates closely with Design First to provide in-house packaging research, development, and creative design support.

It also focuses on sportscaps, fliptops, and closures that are made to sprinkle, pour, drip, spray or spread to increase product usage occasions and boost brand awareness and customer interaction.

Buckle Packaging’ innovative solutions in bag-closing technology

Innovating in the field of bag-closing technology, Buckle

Packaging provides a wide selection of high-quality, durable, and trustworthy 'end of line' packaging machinery for tasks like heat-sealing, stitching, sewing, and stapling.
With the top Fischbein and Saxon lines among its offerings, the company is currently Africa's largest supplier of industrial bag-stitching equipment and heat-sealing systems.
At its location in Johannesburg's industrial hub, City Deep, Buckle Packaging runs a large warehouse, a showroom, and a workshop.

At Propak Africa held last year, Buckle Packaging showcased the Fischbein 100-2 double-needle bag stitching machine which was launched in 2021. The machine allows for the bag to be double stitched across the top in one action. This is a development on the Fischbein 100, which continues to successfully serve the southern African market, and is required by several businesses, primarily those in the food industry.

Buckle Packaging also provides machinery for closing open mouth bags, not only by stitching, but also by heating and gluing. Industries such as charcoal, salt, fertiliser, pet food and animal feeds are all catered for by a range of equipment, from portable hand held units that close up to 300 bags per hour to high-speed automatic in-line stitchers. Saxon's continuous heat sealing equipment, using a patented 'hot air' method of sealing, remains a firm favourite in the poultry and food industry.

Tethered caps help prevent pollution

Tetra Pak has collaborated with top beverage companies to introduce the first tethered caps on carton packaging. The new caps are intended to reduce litter and hasten the switch to renewable resources.

As part of a wider programme, this development paves the way for Europe-based customers to stay ahead of schedule and meet the Single Use Plastics (SUP) Directive coming into force by 2024.

The tethered caps are easy to open and re-close for subsequent consumption, while featuring carefully sized diameters for smooth pouring and drinking. As the cap remains attached to the package, tethered caps are crucial in preventing litter. They could also help reduce the carbon footprint of the carton when they are chosen by food manufacturers as plant-based options, made from polymers derived from responsibly sourced sugarcane, thereby increasing the renewable content of the package.

Did you know?
Closures remain a top 10 litter item globally.

Tetra Pak will spend around €400 million on the creation and implementation of tethered cap solutions, including €100 million in its Châteaubriant plant in France in 2021 to speed up the manufacture of tethered closures.

Coca-Cola's new tethered caps

Meanwhile, Coca-Cola plans to start using a new tethered cap, designed to remain intact with its PET bottle, and thus less likely to be littered and more likely to be recycled. The lightweight, tethered closure was designed by plastic packaging manufacturer Berry Global Group. The EU Directive 2019/204 requires plastic beverage bottles up to 3 litres to have closures that remain attached to the container throughout their intended use from July 2024. The tethered closure for Coca-Cola has a unique tamper-evident band that, when broken, has no effect on the closure's capacity to stay attached. It is placed out of the way for drinking but is still simple to shut again. When open, it offers a wide angle for convenient beverage access and convenient sipping while traveling.

Berry's closure for Coca-Cola is built on their distinctive CompactFlip hinge design. It is the first to be used with the brand-new, thin 26mm GME30.40 neck. Comparing the new neck finish to the current PCO-1881 neck, nearly 1g of PET is saved. Combined with a 10% weight reduction from the Berry closure, the new pack is now around 20% lighter than the PCO-1881 version.

Packaging & processing
FOR THE FOOD INDUSTRY

References
1. FONTANA Manufacturers (Pty) Ltd – Suppliers of plastic and metal closures to the packaging industry https://www.gualaclosures.com/
2. http://www.nampak.com/
3. https://polyoakpackaging.co.za/african-closures/
4. https://www.packit.co.za/product-category/strapping/
5. https://www.bucklepackaging.co.za/products/
6. https://www.b2bcentral.co.za/buckle-packaging-to-display-innovative-new-bag-stitching-machines-at-propak-africa/
7. https://plaspack.com/news/types-of-packaging-closures-what-works-for-different-products/
8. https://www.beverage-world.com/en/newsdetail/aptar-food-beverage-at-pack-expo-international
9. https://packexpo22.mapyourshow.com/8_0/explore/exhibitor-gallery.cfm?featured=false
10. https://www.tetrapak.com/en-us/about-tetra-pak/news-and-events/newsarchive/worlds-first-tethered-caps-carton-packages

SB1000
FISCHBEIN-SAXON SEALER
DEKALB
FISCHBEIN
BUCKLE PACKAGING (PTY) LTD
Bag Closing Technology
SEALING MACHINES
Designed for use in numerous industries, including milling, sugar production, pet food supplies as well as chemical, fertilizer and charcoal manufacturing.
Call us today on:
+27 11 613 8024
email: info@bucklepack.co.za • www.bucklepack.co.za

Thermoplastics in food packaging. The pros & cons

Plastic items have been developed and used extensively during the last half-century and do so much to benefit people's lives worldwide. Most of this plastic is still around today because it doesn't biodegrade, so there is now a significant focus on how to make these products environmentally friendly and recyclable. This is where thermoplastics are different.

Thermoplastics have a unique property that boosts their potential for usage while minimizing under used, wasted material. Sustainable thermoplastic compounds are being used in a wide variety of consumer, commercial, and industrial products.

Businesses of all sizes in industries, including the FoodBev industry are benefiting from developments in polymer science. Here we discuss concerns about the possible environmental impacts of thermoplastics, but also where and how thermoplastics are being used successfully and sustainably in the FoodBev industry.

The downside of thermoplastic packaging

Thermoplastics are widely used in food packaging due to their versatility, durability, and cost-effectiveness. However, the production and disposal of these materials can have significant environmental impacts that must be taken into consideration.

One of the major environmental concerns associated with thermoplastics is the production of greenhouse gases during the manufacturing process. The production of thermoplastics typically involves the use of fossil fuels, which release carbon dioxide and other greenhouse gases into the atmosphere.

Another concern is the disposal of thermoplastic food packaging. Unlike biodegradable materials, thermoplastics do not break down naturally in the environment and can persist for hundreds of years. This can lead to the build-up of plastic waste in landfills and the natural environment, where it can harm wildlife and ecosystems.

The incineration of thermoplastics also releases harmful chemicals and particulate matter into the air, further exacerbating the environmental impacts of this material.

Another issue with thermoplastics is their potential to leach harmful chemicals into food products, particularly when they are exposed to elevated temperatures or acidic substances. These chemicals can include toxic substances such as bisphenol A (BPA), which has been linked to a range of health problems, including hormone disruption, developmental problems, and cancer.

How thermoplastics are being used in a more sustainable manner

The food and beverage industry is a major contributor to the use of thermoplastic compounds in packaging, with these materials widely used for their versatility, durability, and affordability. To address the environmental concerns about their use, there is a growing need for more sustainable alternatives to traditional thermoplastics in FoodBev packaging.

One of the most promising developments in this area is the development of bio-based thermoplastics, which are made from renewable resources such as corn starch, sugar cane, and potato starch. These materials offer many of the same benefits as traditional thermoplastics, including excellent barrier properties, durability, and heat resistance,

AS WITH ANY MATERIAL, THERE ARE BOTH ADVANTAGES AND DISADVANTAGES TO USING THERMOPLASTICS IN FOOD PACKAGING.

The advantages include:

- Thermoplastics are typically less expensive than other materials used in food packaging, making them an attractive option for many companies.
- Thermoplastics can be moulded into a wide range of shapes and sizes, making them suitable for a variety of food packaging applications.
- Thermoplastics are strong and resilient, making them well-suited to protect food products during storage and transportation.
- Some thermoplastics, such as polyethylene terephthalate (PET), are widely recyclable, making them a more environmentally friendly option than other packaging materials.

The disadvantage include:

- Not all thermoplastics are recyclable, and the production of thermoplastic scan have a negative impact on the environment, including the release of greenhouse gases and the use of non-renewable resources.
- Some thermoplastics can release harmful chemicals into food products, potentially contaminating the food and posing a risk to human health.
- Some thermoplastics are not suitable for use with highly perishable foods, as they can only maintain their integrity for a limited period of time.
- While thermoplastics are strong and durable, they may not provide adequate protection against air and moisture, which can cause food to spoil more quickly.

but are biodegradable and compostable, reducing their impact on the environment.

Another promising development is the use of biodegradable additives in traditional thermoplastics. These additives help to break down the plastic when it is disposed of, reducing its environmental impact. Some of the most commonly used biodegradable additives include polylactic acid (PLA), which is derived from corn starch, and polybutylene adipate-co-terephthalate (PBAT), which is derived from natural gas.

One of the most effective ways to reduce the environmental impact of thermoplastics is to increase the use of recycled materials in food packaging. Many FoodBev companies are now using recycled thermoplastics in their packaging, reducing the demand for new, virgin materials and helping to close the loop on plastic waste.

Another way to reduce the environmental impact of thermoplastics is to reduce the amount of material used in packaging. This can be done by lightweighting packaging through the use of thinner, lighter materials. This not only reduces the amount of material used but also the energy required to produce and transport the packaging.

FoodBev companies can also work with their suppliers to improve the production processes used to produce thermoplastics. For example, many companies are implementing more energy-efficient processes, using renewable energy sources, and reducing the amount of waste generated during production.

Incorporating biodegradable additives into the material is yet another way to improve the sustainability of thermoplastic packaging. These additives help to break down the plastic when it is disposed of, reducing its environmental impact.

FoodBev companies can also encourage consumers to use reusable packaging by offering incentives and promoting the use of reusable containers, bottles, and other packaging. This helps to reduce the amount of waste generated and promote a more sustainable approach to packaging.

In South Africa...

There are several companies in South Africa that manufacture thermoplastics for packaging, including:

- Polyoak Packaging: A leading supplier of rigid and flexible plastic packaging products, including containers, lids, and bottles made from a variety of thermoplastics.
- Nampak Plastics: A manufacturer of plastic packaging products, including bottles, containers, and trays, made from a range of thermoplastics.
- Afripack: A supplier of flexible packaging solutions, including bags, pouches, and film made from a variety of thermoplastics.
- Cape Plastic Recycling: A company that specializes in the recycling and manufacture of thermoplastic compounds for use in packaging and other applications.
- Delta Packaging: A manufacturer of rigid and flexible packaging solutions, including containers, trays, and films made from a range of thermoplastics.

There are several promising developments and strategies that FoodBev companies can use to make their use of thermoplastics more sustainable.

From the development of bio-based thermoplastics and the use of biodegradable additives to the increased use of recycled materials, the reduction of packaging waste, and the promotion of reusable packaging, there are many ways in which FoodBev companies can help to address the environmental impact of thermoplastics and promote a more sustainable future.

Packaging & processing FOR THE FOOD INDUSTRY

High-volume Open-Chute Tipper from Flexicon

A new High-Volume Open-Chute Tipper from Flexicon allows discharging of non-dusty, free-flowing and/or agglomerated bulk materials from multiple drums or boxes simultaneously, as well as from Gaylords, totes or bins individually.

The bed of the unit's hydraulically-tipped housing can accommodate containers from 940 to 1115 mm in height, having an individual or combined footprint of up to 1825 x 2435 mm. Typical applications for multiple containers include simultaneous dumping of four 210L drums, or four boxes, each having a footprint of 915 to 1220 mm.

Pallets weighing up to 2265 kg are forklift-loaded into the three-sided unit and secured, after which a grate is lowered onto the container(s) to prevent shifting. The lifting assembly is raised to a height of 1955 mm and tipped hydraulically, causing material to slide through a smooth, three-sided chute into receiving vessels.

Twin hydraulic cylinders pivot the platform-chute assembly to discharge angles of 45 or 60 degrees beyond horizontal, including a motion-dampening feature at the termination of container rotation. Impact-resistant side panels and custom guard panels with a light curtain ensure safe operation.

The tipper is available in heavy-duty, all-stainless construction to sanitary standards (shown) or in carbon steel with durable industrial coatings and stainless-steel material contact surfaces.

It is also available with optional receiving hoppers configured with Flexicon mechanical or pneumatic conveyors to transport discharged material to any plant location.

The company also manufactures other configurations of drum/box/container tippers as well as flexible screw conveyors, tubular cable conveyors, pneumatic conveying systems, bulk bag dischargers, bulk bag conditioners, bulk bag fillers, manual dumping stations, weigh batching and blending systems, and engineered plant-wide bulk handling systems with automated controls.

For more information contact Flexicon Africa at **sales@flexicon.co.za** or visit **www.flexicon.co.za**

Packaging & processing
FOR THE FOOD INDUSTRY

Complete Prepared Food Solutions **designed for your business**

- Preparation & Processing
- Frying & Oil Management
- Batter & Breading
- Branding & Searing
- Cooking, Roasting & Drying
- Coating & Seasoning
- Product Handling

Across industries and applications, we design specialised solutions.

Bringing together leading brands in processing and packaging equipment for the value-added industry. Our fryers, ovens, branders, searers and breading/batter applications can prepare and cook the highest quality meat, poultry and seafood products. Whatever your product needs, we can meet it with precision and passion.

HEAT AND CONTROL | FastBack | SPRAY DYNAMICS | MASTERMATIC

info@heatandcontrol.com | heatandcontrol.com

Under scrutiny:

Food contact packaging

With increasing global restrictions for food contact materials and emerging contaminants under scrutiny, now more than ever, manufacturers need to take regular measures to ensure their packaging does not pose a risk to food.

All types of food packaging materials, including recycled plastics, paper, cardboard, glass, or metals, can contain dangerous contaminants that can migrate into food. As such, raw, intermediate, and final packaging materials need to be analysed to prevent the risk of contamination and ensure compliance with health and safety requirements.

Bisphenol A (BPA) is a chemical that has been used for many years in the production of plastic products, including food packaging. It is used as a hardening agent in polycarbonate plastic and as a coating for the inside of metal cans. However, studies have shown that BPA can leach into food and drinks, especially when exposed to heat, light, and acidic substances.

Phthalates are a group of chemicals that are commonly used in plastic food packaging, including soft plastic wraps and containers. These chemicals have been found to leach into food and drinks, especially when the packaging is exposed to heat or light. Phthalates are endocrine disruptors, meaning they can interfere with the normal functioning of hormones in the body.

Perfluoroalkyl substances (PFAS) are a group of man-made that are highly resistant to heat, water, and grease, making them ideal for use in food packaging. However, studies have shown that PFAS can leach into food and drinks, especially when the packaging is exposed to high temperatures or acidic substances.

Polyvinyl chloride (PVC) is a type of plastic that is commonly used in food packaging, including cling wrap, containers, and water bottles. However, PVC is known to release toxic chemicals, including phthalates, when it is exposed to heat or light.

All these chemicals have been linked to a number of health issues, including endocrine disruption, liver damage, and an increased risk of certain types of cancers.

In addition to the health risks associated with these chemicals, they are also a source of environmental concern. Most of the chemicals used in food packaging are not biodegradable, meaning they can persist in the environment for many years. This can result in the accumulation of these chemicals in the food chain, leading to potential harm to wildlife and other non-human species.

Testing services

There are several laboratories in South Africa that offer testing services for food contact packaging. Some of these include:

SGS South Africa is a leading global inspection, verification, testing and certification company. They offer a range of testing services for food contact packaging, including migration testing, leachable testing, and material composition analysis.

Intertek South Africa is a provider of quality and safety solutions, including testing and certification services. They offer a wide range of testing services for food contact packaging, including migration testing, extractable and leachable testing, and chemical analysis.

Bureau Veritas South Africa is a global testing, inspection, and certification company. They offer a range of services for food contact packaging, including migration testing, extractable and leachable testing, and material composition analysis.

ALS South Africa offers testing, inspection, and certification services. They offer a range of services for food contact packaging, including migration testing, extractable and leachable testing, and material composition analysis.

PESC laboratories has a team of highly qualified experts in the fields of plastic and polymer sciences and engineering. It has created an in-house custom built quality system giving customers the assurance of full traceability from sample delivery, reporting of accurate and verifiable results, and storage and responsible disposal of samples upon completion. The lab offers detailed testing and services on thermoplastics, thermosets, elastomers, resins, and other related plastic and polymer materials.

Roediger Agencies is a South African testing laboratory that provides a range of services for food contact packaging. Their services include migration testing, extractable and leachable testing, and material composition analysis. They use state-of-the-art equipment and techniques to ensure that their results are accurate and reliable. Roediger Agencies is committed to providing high-quality testing services to their clients and helping to ensure that food contact packaging products are safe for consumers and the environment. In addition to testing services, Roediger Agencies also provides consulting and support to help their clients understand the results of their tests and make informed decisions about their products.

References

1. https://www.merieuxnutrisciences.com/za/packaging/food-packaging-testing/
2. https://www.sgs.com/en-za/services/chemicals-testing
3. https://www.fda.gov/food/food-ingredients-packaging/phthalates-food-packaging-and-food-contact-applications
4. https://www.packaginglaw.com/ask-an-attorney/what-are-food-contact-requirements-south-africa
5. https://pesc-lab.co.za/index.php/about
6. http://www.roedigeragencies.co.za/
7. https://www.dow.com/en-us/search.html#q=food%20contact&t=All&sort=relevancy
8. https://www.restaurantnewsresource.com/article124643.html

Company showcase

ELEMENTAL ANALYTICS

Tel +27 11 918 6994
Info@e-analytics.co.za
www.e-analytics.co.za

We design, install, test and commission analytical products for process control, optimisation, environmental and other specialised applications. Including analytical applications such as gas analysers, gas detectors, portable analysers, environmental monitoring and lab instruments for processing, emissions, water and safety applications. Our portfolio consists of the some of the world's leading manufactured analysers and consumables, such as fittings, regulators, flow, MAP and CAP measurement, etc. We have extensive experience in system design and integrated sampling systems. Our experienced, highly qualified and factory trained staff market, maintain and repair our commissioned product ranges at our fully functional repair workshop and laboratory

Alternatives for a healthier future

The good news is that there are alternatives to these undesirable chemicals in food packaging. For example, there are many types of BPA-free plastic products available. There are also PVC-free cling wraps and containers, as well as non-stick cookware that does not contain PFAS.

Food contact packaging manufacturers can take a number of steps to ensure that their products do not contain undesirable chemicals:

Conduct regular testing:
To ensure that their products are free of undesirable chemicals, food contact packaging manufacturers should regularly test their products for the presence of harmful substances. This testing should be done by an independent laboratory, and the results should be made available to consumers.

Use safer alternatives:
Seek out and use safer alternatives to chemicals that have been linked to health or environmental problems. For example, instead of using BPA, manufacturers could use BPA-free alternatives such as polyethylene terephthalate (PET) or polypropylene (PP).

Implement a chemical management plan:
Implement a chemical management plan that outlines the steps they are taking to minimize the use of harmful chemicals in products. This plan should include a list of the chemicals the manufacturer is using, information on the potential health and environmental risks associated with each chemical, and a timeline for transitioning to safer alternatives.

Monitor developments in the field:
Stay informed about the latest research and developments in the field of food contact packaging, including new research on the potential health and environmental risks associated with certain chemicals. Manufacturers should use this information to make informed decisions about the chemicals they use and the products they produce.

Work with suppliers:
Work closely with suppliers to ensure that the raw materials used are free of harmful chemicals. Manufacturers should also require their suppliers to provide documentation on the safety of the materials they are providing.

Engage with stakeholders:
Food contact packaging manufacturers should engage with stakeholders, including consumers, advocacy groups, and government regulators, to understand their concerns and respond to their questions about the safety of their products. They should also participate in industry-wide initiatives to promote the use of safer alternatives to harmful chemicals in food contact packaging.

Follow regulations:
Packaging manufacturers should also comply with all relevant regulations, including those related to the use of chemicals in food contact packaging. They should also be aware of any changes to these regulations and take action to ensure that their products continue to comply.

By taking these steps, food contact packaging manufacturers can help to ensure that their products are safe for consumers and the environment. By prioritizing safety and transparency, they can also help to build trust with their customers and establish a reputation for quality and responsibility.

What food contact regulations exist in South Africa?

South African food regulations are aligned with CODEX Alimentarius Commission guidelines. The Foodstuffs, Disinfectants and Cosmetics Act (FDCA) 54 of 1972, updated in 2009, controls the sale, manufacture, importation, and exportation of foodstuffs (including food packaging), cosmetics, and disinfectants.

Specific regulations that impact food-contact materials include R879/2011, which prohibits the manufacture, import, export, and sale of polycarbonate infant feeding bottles containing Bisphenol A (BPA), and R962/2012, which provides general hygiene requirements for food premises and the transport of food. Section 7(2) of R962/2012 states, “A container shall be clean and free from any toxic substance, ingredient or any other substance liable to contaminate or spoil the food in the container.”

The South African Department of Health (DOH), Directorate of Food Control is responsible for developing regulations and technical guidelines for food safety, food labelling, and related matters. More information can be found on DOH’s website.

SABS cautions against unverified claims of degradable plastics

South Africa generates 2.4 million tons of plastic waste every year, according to the World Wide Fund for Nature (WWF). This means that every South African contributes about 41kgs of plastic waste per year and about 14% is recycled. The South African Bureau of Standards (SABS), together with other national standards bodies and standardisation forums continue to work to provide standards and guidelines for environmentally friendly production and processing of plastics and plastic products.

SABS has recently published South African National Standard (SANS) 1728: The requirements for the marking and identification of degradable plastics.

Degradable plastics include but are not limited to biodegradable, compostable, oxo-biodegradable, and water-soluble plastics. SANS 1728 advises consumers to recognise the correct markings and to be aware that any product that claims to have biodegradable plastic packaged, needs to be verified according to the standard, which is aligned to global requirements.

Dr Sadhvir Bissoon, Acting CEO of the SABS explains that vague environmental claims such as 'environmentally safe', 'environmentally friendly, 'earth friendly', 'non-polluting', 'green', 'ozone friendly', plastic 'free' etc, are specifically cautioned against in SANS 1728. "Manufacturers that wish to claim their plastic packaging are degradable, need to subject the packaging to the relevant testing and certification requirements."

SANS 1728 requires that the plastic material used in the packaging must be presented on the packaging, using a material identification code from 1-7, and contained in a triangle.

1 = PET (polyethylene terephthalate)
2 = PEHD (High-density polyethylene)
3 = PVC (Polyvinyl chloride)
4 = PELD (Low density polyethylene)
5 = PP (Polypropylene)
6 = PS (Polystyrene)
7 = all other materials (e.g., ABS, PLA, SAN, etc.)

Should the plastic packaging be of a degradable nature, it will be indicated below the triangle, as illustrated below (extract from SANS 1728):

Drg 1104

PLA Compostible

Figure 1 - Wording on a compostible product

Drg 1104e

PE- LD Oxo-Biodegradable

Figure 2 - Wording on an Oxo-Biodegradable product

"Currently, in South Africa there are no products that have been certified by the SABS as compliant or meeting the requirements of SANS 1728 and consumers are urged to be vigilant when purchasing plastic products that make false claims of being degradable or 'environmentally friendly' or plastic free. Basically, manufacturers need to ensure that they have verified the type of plastic in their packaging before they can make any claims about their products, says Bissoon.

In South Africa, the Department of Forestry, Fisheries and Environment holds the authority and regulatory power over packaging. In May 2021, the Extended Producer Responsibility (EPR) recommendations became regulations and include requirements for packaging and correct labelling of products and packaging.

Find out more at:
https://store.sabs.co.za/catalog/product/view/id/2142887/s/sans-1728-2019-ed-1-00/category/61/

Can long life packaging help counteract South Africa's energy crisis?

The perception of packaging among consumers has changed, not only as a result of health concerns during the COVID-19 pandemic, but also because of the energy crisis SA is currently facing.

The number of consumers now choosing packaged goods using shelf stable packaging technologies has increased significantly, and thus too the production of long-life packaging in the FoodBev packaging industry.

Shelf-stable packaging technologies are designed to extend the shelf life of food products, making it possible to store them without the need for refrigeration. This type of packaging technology is becoming increasingly important as populations grow and food demand increases, making it necessary to find ways to reduce food waste and improve food security.

One of the key benefits of shelf-stable packaging is that it helps to reduce the need for refrigeration. This can help to lower energy costs, as refrigeration requires a significant amount of energy, and can also help to improve food security in areas where refrigeration is limited. Shelf-stable packaging can also help to reduce the carbon footprint of food production, as less energy is required to store and transport food products.

There are several different types of shelf-stable packaging technologies, including retortable pouches, aseptic packaging, and modified atmosphere packaging.

Retortable pouches are made from a combination of metal and plastic materials and are designed to withstand high temperatures during the sterilization process. This makes it possible to store food products for long periods of time without the need for refrigeration.

A type of flexible packaging that, these pouches are designed for use in high-temperature food processing, such as sterilization or pasteurization. This type of packaging is made from materials that can withstand high temperatures, such as polyester and polypropylene, and is typically sealed with a heat-resistant sealant. The combination of these materials and the sealing process helps to preserve the freshness and flavour of the food, as well as increase its shelf life.

Retortable packaging is an ideal solution for food producers looking to improve the longevity of their products while also reducing the amount of waste generated. Because retortable packaging is airtight, it helps to protect the food from oxygen, moisture, and other contaminants that can cause spoilage, and doesn't need refrigeration. This is particularly useful for foods that are susceptible to spoilage, such as meat, poultry, and seafood.

Many retortable packaging solutions are also recyclable or can be reused, further reducing their impact on the environment.

Aseptic packaging helps to extend the shelf life of perishable food products by preventing contamination from bacteria, yeast, and other microorganisms. This type of packaging uses sterilized containers and a sterile filling process to create an environment that is free of harmful bacteria and other contaminants.

The aseptic packaging process begins by sterilizing the containers and fillers, typically using high-temperature steam. The food product is then filled into the containers while it is still hot, creating a vacuum-sealed environment that is free of oxygen and other contaminants. The containers are then cooled rapidly, which helps to lock in the freshness and flavour of the food.

One of the major benefits of aseptic packaging is its ability to extend the shelf life of food products without the need for refrigeration or preservatives. This type of packaging is ideal for perishable food products, such as dairy products, soups, and juices, which are typically sensitive to spoilage.

Another benefit of aseptic packaging is its convenience. This type of packaging is lightweight, easy to transport, and does not require refrigeration, making it ideal for on-the-go consumers. Additionally, aseptic packaging is available in a range of sizes and shapes, making it suitable for a variety of food products.

Modified atmosphere packaging (MAP) involves controlling the atmosphere inside the package to extend the shelf life of food products. This is done by removing oxygen and adding gases, such as carbon dioxide and nitrogen, which can help to prevent the growth of bacteria and other microorganisms. The specific gas mixture used will depend on the type of food product and its specific preservation requirements.

One of the major benefits of MAP is its ability to extend the shelf life of perishable food products without the need for refrigeration or preservatives. This type of packaging is ideal for products such as fruits, vegetables, and meats, which are typically sensitive to spoilage and oxidation. By controlling the composition of the air inside the package, MAP helps to slow down the spoilage and oxidation processes, allowing these products to be stored for longer periods of time without the need for refrigeration.

Emerging technologies

Emerging technologies in shelf-stable food packaging are providing novel solutions to the challenges of food waste and food security. These technologies are designed to extend the shelf life of food products, reduce the need for refrigeration, and lower the carbon footprint of food production.

One emerging technology in shelf-stable food packaging is active packaging. This involves incorporating materials into the packaging that can help to extend the shelf life of food products. For example, oxygen absorbers can be added to the packaging to help remove oxygen, which is necessary for bacteria to grow. Antimicrobial agents can also be added to the packaging to help prevent the growth of harmful microorganisms. Time-temperature indicators can be incorporated into the packaging to help monitor the temperature of the food product and alert consumers if the food has been exposed to temperatures that could make it unsafe to consume.

Smart packaging is another emerging technology in the field of shelf-stable food packaging. This type of packaging incorporates sensors and other digital technologies into the packaging to provide real-time information about the food product, such as its temperature, humidity, and freshness. This information can be used by consumers to make informed decisions about the safety and quality of the food product and can also be used by food producers to monitor the supply chain and improve food safety.

Nanotechnology is also being used in the field of shelf-stable food packaging. This technology involves the use of nanoscale materials and structures to create new and improved packaging solutions. For example, nanoscale coatings can be applied to the packaging to provide a barrier to oxygen, water vapour, and other gases that can cause food to spoil. Nanoscale materials can also be used to create active packaging, such as oxygen absorbers and time-temperature indicators.

Emerging technologies in shelf-stable food packaging are providing new solutions to the challenges of food waste, food security and energy use. By incorporating new materials and digital technologies into the packaging, it is possible to extend the shelf life of food products, reduce the need for refrigeration, and lower the carbon footprint of food production.

As these technologies continue to evolve, they will play an increasingly important role in building a more sustainable and secure food system for the future.

Packaging & processing
FOR THE FOOD INDUSTRY

References
1. https://www.rfg.com/our-operations/regional-long-life-foods/Shelf Stable Packaging Market Analysis - Industry Report - Trends, Size & Share (mordorintelligence.com)

How loadshedding affects SA's plastics industry

From manufacturing and production to retail and education, not a single industry is being left unscathed and unaffected. Plastics SA Executive Director Anton Hanekom says the local plastics industry is no exception when it comes to experiencing the negative impact of relentless interruptions in power supply

"Our industry is especially exposed when it comes to loadshedding due to the fact that the processing and production of plastics and plastic products are done primarily through thermal processing. This means that high temperatures must be maintained throughout the manufacturing process. However, without power, these high temperatures cannot be effectively reached and maintained, nor is there enough time between scheduled power outages for the machines used to reach the required temperature for the processes to be restarted," Hanekom explains.

Furthermore, when producing and manufacturing large quantities of polymer materials, the extrusion process is required, in which the materials are enriched with additives and melted for production to be completed successfully. This entire process comes to a halt when manufacturers experience power outages. While restarting the production process may appear simple, there are serious consequences when machines shut down unexpectedly for extended periods of time.

"During the extrusion or melting process, once the machine shuts down for a three- to four-hour loadshedding stint, the materials that were being processed solidify in the machine. This means that the time required to remove the solidified materials, clear the machine, and prepare to restart the process from scratch is added to the overall production time. A significant amount of time and material is wasted, which has a knock-on effect on operating costs, staffing, and production. Revenues are being eroded and thousands of jobs are being threatened in an industry that is a priority sector and contributes approximately 17 percent of the country's manufacturing GDP," Hanekom explains.

Ripple effects felt by other industries

Plastics are ubiquitous in our lives and can be found in almost every aspect. As a result, plastic manufacturing and use serve as the foundation for other products. When the plastics industry faces such severe challenges, it quickly snowballs and affects other closely related and critical industries, such as the packaging sector, which accounts for half of total plastic polymer consumption in South Africa, followed by the building and construction sector.

"Our country has a number of major packaging producers. However, the challenges extend beyond the financial bottom line of these producers, as effective packaging is important to avoid food waste, extend the shelf life and prevent spoilage or breakage of certain products. We need to start talking about "packaging security" in the same breath as food security. When plastics packaging production suffers, it leads to increased transportation costs, food waste and inflation," Hanekom explains.

Impact of loadshedding on the recycling of plastics

"The recycling process is in essence also an extrusion process based on thermo-processing principles. Profit margins in this industry are already extremely marginal. Add to

that rising transportation costs and the need to invest in alternative energy sources such as generators or solar power to stay operational, and our recyclers are being brought to their knees when left in the dark for up to six hours at a time," Hanekom emphasizes. Smaller entrepreneurial companies doing collection and baling do not have the funds for alternative energy sources and this causes further bottlenecks in the supply of recyclables.

Whilst relying on generators for private use can be effective to keep homes operational and the lights on until loadshedding ends, it does not pose an effective long-term solution for large companies that mass produce plastic products. Owing to the high cost of diesel, manufacturers find themselves paying double the tax when they use generators. In 2000 Government started implementing a diesel refund system to provide full or partial relief from the general fuel levy and the Road Accident Fund (RAF) levy to primary sectors such as agriculture. The refund system is in place for the farming, forestry, fishing and mining sectors. However, during the last budget speech, in light of the electricity crisis, a similar refund on the RAF levy for diesel used in the manufacturing process, such as for generators, has been extended to the manufacturers of foodstuffs. We believe this refund must be extended, to all manufacturing sectors using generators, to bring much needed relief from the general fuel levy and RAF levy.

We need to start talking about "packaging security" in the same breath as food security. When plastics packaging production suffers, it leads to increased transportation costs, food waste and inflation.

The importance of becoming self-reliant

With the country's power utility predicting at least two more years of loadshedding on the horizon, the plastics industry cannot afford to wait on the government to solve its problems. Hanekom says that, as the representative body of the plastics industry, Plastics SA strongly advises plastic producers to find practical and innovative ways of getting around the power supply issues they face. Load curtailment is another alternative solution, for those companies which gets their electricity directly from Eskom and where arrangements exist whereby Eskom can ask energy users to curtail or reduce their power usage up to a certain percentage of the load.

If no other economically viable solutions can be found, at least bargain for longer periods. The industry would welcome loadshedding cycles of 12 hours or more. In other words, switch the supply off for 12 hours but then allow the manufacturers and recyclers to run continuously for 7 days. The stop-start cycles are not the solution for thermo-processing technologies.

The stop-start cycles are not the solution for thermo-processing technologies.

"As part of government's Industrial Policy Re-imagined, a Plastics Industry Master Plan is being developed to put the industry on a growth trajectory. This plan is already three years in the making and sees an active collaboration between industry, labour and government to develop a vision for the industry, identify blockages and constraints, and develop a set of key actions that need to be taken forward over the short and medium term. We are tapping into these resources and partnerships to try and find affordable and workable energy solutions to ensure our industry remains competitive. Whether these solutions involve going off the grid, feeding power back into the grid, or using renewable energy, a viable solution needs to be found and implemented as a matter of urgency if we hope to see any form of success in the future" , Hanekom concludes.

For more information, visit **www.plasticsinfo.co.za**

FOODStuff SOUTH AFRICA

DRINKStuff SOUTH AFRICA
We hunt down the latest foods-drinks news & trends so you don't have to!
www.foodstuffsa.co.za
www.drinkstuff-sa.co.za

Message in a bottle

Trade mark dispute over container shape

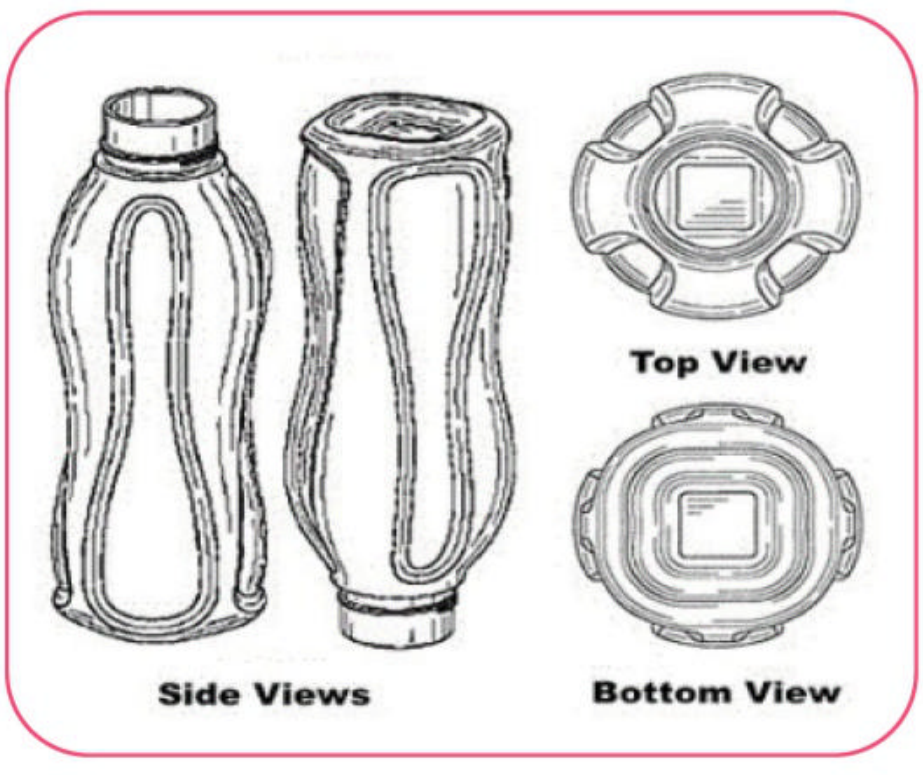
By **Pieter Delport,** Associate, trade marks, and Juli Hopf – Partner, trade marks, Spoor & Fisher

When it comes to brands, consumers tend to focus on logos, but the distinctiveness of product's shape or its packaging, can be just as important in identifying a brand. The South African Trade Marks Act specifically includes both, "shapes and containers," in the definition of what may constitute a 'mark'. Trade mark practitioners get excited when the shape of a product finds itself at the centre of a trade mark dispute.

Tupperware Eco Bottles

With this in mind, we review the trade mark dispute between Dart Industries Incorporated and Another v Botle Buhle Brands (Pty) Ltd and Another (636/2021) [2022] ZASCA 170 (1 December 2022). As Judge Makgoka, who delivered this judgment, described it – "This is a trade mark dispute about a shape of a water bottle."

Dart Industries Incorporated, was the registered proprietor of a trade mark filed in 2015, registered for: 'Household containers; kitchen containers; water bottles sold empty; insulated bags and containers for beverages for domestic use; beverageware; drinking vessels.' It was endorsed as consisting of 'a container for goods', and was represented as follows on the trade marks register.



Tupperware Southern Africa (Pty) Ltd, and its South African representative and licencee in South Africa. Tupperware had been selling a plastic bottle, in the shape for which it has been registered, as a trade mark since 2011, marketed as the 'Eco Bottle'.

In 2019 Botle Buhle Brands started to market and sell the following bottle:

Tupperware approached the high court to restrain Buhle Brands from infringing its registered trade mark and sought a restraining order based on passing off.

In response, Buhle Brands launched a counter-application for the removal of Tupperware's trade mark registration.

Initially, The high court found that Tupperware's registered trade mark was neither inherently distinctive nor had acquired distinctiveness as a result of prior use, and Tupperware's application was dismissed in the high court and Buhle Brands' counter application was granted. This made it unnesessary for the high court to decide the infringement issue or Buhle Brands' other grounds. On deciding the passing offf issue, the court found that, although the bottles were virtually identical, taking into consideration the sales model used by both parties, there was no likelihood of deception or confusion.

Botle Buhle Bottle

The matter then went to the supreme court of appeal, where the court first considered, whether the shape of Tupperware's Eco Bottle as a mark, should

to be removed from the register, specifically considering the bottle shape's inherent distictiveness or acquired distinctiveness.

Inherent distinctiveness

In considering the question of whether Tupperware's mark was inherently distinctive or not, the court had to consider that the function of a trade mark is to indicate the origin of the goods or services. (In the case of shape marks, the perception of the public is crucial. If the public relies on the distinctiveness of the shape as an indicator of the source of the goods, that then denotes the shape of a product as a trade mark.) The question therefore had to be asked, whether the public would perceive the container to be a badge of origin and not merely another vessel.

Tupperware contended that its Eco Bottle, 'departs significantly' from the shape of other water bottles in the market." They also claimed that the use of the specific hourglass shape with indentations was unique and unknown to the market at the time the bottle was launched in South Africa. The court then applied three steps in deciding whether the mark differed significantly from the norms and customs of the sector: Firstly, one needed to determine what the sector was. Secondly, to identify any common norms and customs of that sector and lastly to decide whether the mark departed significantly from those norms or customs. There was no evidence before the court that consumers appreciated that the bottle conveyed trade mark significance.

The court was not convinced that customers would consider the shape of the Eco Bottle alone as a guarantee that it was produced by Tupperware, as 'containers and shapes generally do not serve as sources of origin.' The appeal court agreed with the high court that the Eco Bottle did not have an inherently distictive character.

Distinctiveness as a result of prior use

There was no evidence before the court that the purchasers of the Eco Bottle perceive the shape of the bottle as an indicator that it originated from Tupperware. Tupperware also never marketed, promoted or sold the bottle with reference to its shape.

The Eco Bottle is also embossed with the Tupperware trade mark on its side and the court was of the mind that the public might rather perceive the bottle as originating from Tupperware because of the well-known embossed trade mark and not because of the shape of the bottle.

In conclusion, the court found that the shape of Tupperware's Eco Bottle 'did not distinguish it from water bottles sold by others and therefore was not distinctive, and the high court was correct to uphold Buhle Brands' counterclaim by ordering the cancellation of Tupperware's registered mark.

Passing off

The court also had to determine whether Buhle Brands was passing off its water bottle as being Tupperware's Eco Bottle. Passing off implies that in a representation by one person, that his business or merchandise, is that of another, or that it is associated with that of another'.

In passing off proceedings, the court must consider many factors in determining whether there is a likelihood of confusion between products and brands. The court considered the shape, colour, material, and the caps of the bottles, as well as the placement of the respective 'Tupperware' and 'Botle Buhle' trade marks embossed on the side of the bottles.

Below are representations of the respective water bottles

:

Tupperware Eco Bottles

Botle Buhle Bottle

The requirements for a successful passing off action also require proof of reputation or goodwill, and a reasonable likelihood that members of the public may be confused into believing that the business of one is, or is connected with, that of another.

The Tupperware Eco Bottle had been promoted extensively in catalogues, newsletters and promotional leaflets. Considering the extensive and undisputed sales figures and marketing information, both the high court and the court of appeal, found that Tupperware had established the necessary reputation in the Eco Bottle.

Both courts were in agreement that the bottles of both parties were 'virtually identical', with the only significant difference between the two competing bottles being the embossing of the words 'Tupperware' and 'Botle Buhle' on the side and cap of the bottles. The embossing, was considered by the court to be, 'inconspicuous, and does little or nothing to distinguish the two products." The high

court concluded that given the sales model, there was no likelihood of confusion. The high court confined its enquiry however, to the "so called" Tupperware parties - Tupperware's unique sales model which includes the hosting of parties by a magnitude of consultants, predominantly at their homes.

Judge Makgoka remarked, quite firmly as follows: 'It seems to me that the overall design of the Buhle Brands' water bottle was not to distinguish it from that of Tupperware, but rather to associate the two. In other words, Buhle seems to have strained every nerve to associate its water bottle with the Eco Bottle.'

The Judge remarked that the enquiry whether a likelihood of confusion exists, should extend beyond the Tupperware parties. Consumers may encounter the competing bottles at a party where both products are sold. Both the competing products were also marketed online, and in some instances catalogues of both products are depicted side by side. This, in the view of the court established the likelihood of confusion between the two products. It was therefore very likely that a customer would encounter the two competing bottles side by side and make an association between them – this is even more likely when making online purchases.

The court of appeal also remarked that, 'This type of confusion, which results in consumers purchasing one product thinking that it is the one they know, or is associated with it, is at the heart of the action of passing-off.' The court found that the likelihood of confusion therefore did exist.

The third issue in passing off is damage to a brand. Regarding damages, the court remarked that 'by adopting the same marketing strategy as Tupperware, Buhle Brands had sought to associate its product in every respect, with that of Tupperware. This would enable Buhle Brands to trade its water bottle upon and benefit from the reputation of Tupperware's Eco Bottle. The damage to Tupperware is inevitable.'

Conclusion

This case is another great example of how shapes and containers (or even a combination of the two) clearly can serve a distinguishing function. It remains however, important for the owners of these shapes and shape trade marks to consider carefully the way in which they wish to protect their products and how they wish to distinguish their goods from those of competitors. It remains clear that relying only on shape as a trade mark can be tenuous and should be considered only part of a product's identity.

About Spoor & Fisher:

Spoor & Fisher is Africa's largest specialised intellectual property law firm, with African roots and global reach. The firm specialises in all aspects of IP law, including trademarks, copyright, patents, registered designs, anti-counterfeiting, commercial/transactional work involving IP, and litigation in these fields. **Find out more at www.spoor.com**

Global Developments

United Caps has launched the 23-H-PAK, a ground-breaking new cap for carton packaging. The company's latest innovation is a carton closure tethered to outstanding value and performance instead of expensive line changes.

In July 2023, the Single-Use Plastic Directive goes into effect, and all EU member states will need to comply and ensure that caps and lids of all beverage containers up to three litres remain attached to prevent it getting lost and to facilitate recycling.

This new cap, which is designed specifically for use with carton beverage packaging, offers a tethered solution packed with innovative patent pending features and benefits.

According to the company, the new cap is fully compatible with existing production lines facilitating fast and inexpensive integration. It also offers clever tamper-evidence, which is crucial for ensuring the safety and integrity of products.

For more details visit https://www.unitedcaps.com/

New enterprise development for black-owned recycling businesses

As we celebrate Global Recycling Day on 18 March 2023, we see some good news coming out of the local recycling sector - a unique enterprise development programme is set to boost small, black-owned recycling businesses, create jobs and improve the long-term sustainability of the recycling value chain in South Africa.

The programme, which focuses on recycling buy-back centres, is being implemented by one of South Africa's most enduring producer responsibility organisations, PETCO, and its funding partners. The programme will provide structured training and mentorship as well as infrastructural, equipment and funding support to enable entrepreneurs to grow their post-consumer waste collection volumes and run their businesses more effectively.

PETCO CEO Cheri Scholtz said the initial programme was being introduced in KwaZulu-Natal in early 2023, with a view to rolling it out across South Africa as more funding partners come on board.

"PETCO is very serious about creating a sustainable recycling value chain, with a plan which looks ahead as far as five years," said Scholtz.

She said the newly launched enterprise development programme would make a positive contribution towards the transformation of the waste collection and recycling sector and the inclusion of small to medium enterprises in the waste value chain.

"The small business cannot be seen in isolation. It is essential to ensuring a reliable supply of quality feedstock to our recycling partners and must be supported as a key element of our overarching socio-economic and environmental strategy," explained Scholtz.

Sue Jurgens, operations manager for implementing partner Enterprise Room, said nine businesses who met the pre-qualifying criterion of producing at least 20 tonnes of polyethylene terephthalate (PET) per month, had been selected following a rigorous application and assessment process.

"The business assessment reviews the SME's level of business regulatory compliance and the full spectrum of business activities in the creation of its product and service - from receiving materials through to delivery to market, and everything in between," explained Jurgens.

"Then we focus on supporting and guiding the business development process, which covers financial management, marketing, operational efficiencies, cost effectiveness, staff management, identifying opportunities for new business, and plans for job creation as well as maintaining regulatory compliance," she said.

She said the consolidation of all these elements created opportunities for the small business to continue its growth and obtain future funding to expand further – even after the programme had ended.

"Systemic change takes time which is why PETCOs overall strategy is realistic. There is a tendency in South Africa for corporates to put businesses on programmes in the hope of achieving results very quickly. The businesses we work with will experience change within the programme but must remain sustainable thereafter. Long-term vision and support to drive strategic and behavioural change is required."

Jurgens said expressions of interest from potential funding partners in other provinces would be welcomed and that such investment support would also earn the funder B-BBEE scorecard points on their economic development spend.

Packaging & processing
FOR THE FOOD INDUSTRY

Dow 2022 Packaging Innovation Award Winners

The winners of the 2022 Dow Packaging Innovation Awards, one of the packaging industry's premier awards competitions for over 30 years, recently announced their diamond, platinum, gold and silver winners.

Emerging up-and-comers and well-established brands alike have the opportunity for their most innovative packaging to be judged on the world's stage. The Packaging Innovation Awards celebrates creations that challenge the accepted limits of what is possible, display new technologies or techniques and inspire future innovation.

The winning packages are celebrated and showcased across the global packaging industry, receiving recognition among industry peers, and gaining exposure in new markets and with new audiences.

Here are the winners who fall within the food & beverage industry.

PLATINUM WINNER: Integrated Plastics Packaging

Side gusseted flat bottom (3d) pouch for rice

Large family rice packs are traditionally packed in woven, jute or fabric bags. These are greatly compromised in terms of complex designs, multi colour print, consistency, product visibility, recyclability, and cost. Integrated Plastics Packaging developed a recyclable all polyethylene (PE) 3-layer printed laminate and converted it to a side gusseted flat bottom 3D pouch for a 5kg rice retail pouch.

This high-quality gravure printed and laminated pouch stands out on the shelf with the added benefit of reusability and recyclability. The side gusset uses a clear laminate for product visibility to enhance consumer satisfaction. The pouch also features a half-cut handle for carrying, front pocket resealable press to close zipper, and rounded corners. Another friendly feature for filling and packing is the wide bottom open mouth which allows the product to be filled with ease versus traditional top methods. The all PE/MET PE/PE pouch is reusable and recyclable and qualifies for a store drop-off recycle programme, hence a win-win solution. This flexible laminate material provides recyclability without compromising the visibility, durability, and seal-ability. A unique look and feel that eco-cognizant customers perceive and reinforces the brand image of environment friendly brands.

PLATINUM WINNER: 3M

3M Scotch™ Cushion Lock™ Protective Wrap

Scotch™ Cushion Lock™ is an expanding paper wrap made with 100% recycled paper that offers proven protection while items are on the move. How? One 9m roll expands to replace 23m of plastic bubble* – just stretch, wrap, and pack with nested protection. With its proprietary design, you don't need tape to secure or scissors to cut. Once delivered, just recycle with ease. Cushion Lock™ expands to become 2x thicker when wrapping around items compared to plastic bubble. When it comes to existing honeycomb paper wraps, Cushion Lock™ delivers 1.5x the thickness around items than other paper wraps can.

PLATINUM WINNER: Plastiandino S.A.

EcoTec Recyclable Packaging for Pet Food

The development of packaging for animal nutrition (pet food) is no exception to the need for improved sustainability. By combining high-performance polyethylene (PE) resins by coextrusion, a film is obtained that can be processed under the same conditions as PET-based multilayer structures.

This mono-material packaging structure comes with a reduction in carbon footprint, the incorporation of recycled content and a final package that is recyclable. EcoTec goes a step further and offers an interactive experience for the consumer. By scanning a QR code on the package, the consumer can learn about the structure and tips for recycling or reuse.

PLATINUM WINNER: Scholle IPN, Bossar Packaging

High-barrier polyethylene spouted pouch for beverages

Most spouted pouches on the market are based on polypropylene, which does not currently have a developed recycling stream in many countries. Scholle IPN developed a mono-material polyethylene (PE) high-barrier spouted pouch that allows for easier recycling.

The material is non-laminated. The printing of the bag is done on the surface with inks and an overprint lacquer, which allows total deinking, helping ensure a high quality mechanically recycled material.

With regards to functionality, the closing cap is based on a snap-on system, versus threaded, which makes it easier to open and close for people of any age range. The pouch is also easily squeezable. In addition, the weight of spout and cap has been significantly reduced compared to the previous version. The pouch is intended for beverages and can withstand hot filling and pasteurization.

PLATINUM WINNER: SoFresh

Active packaging for bread

The effect of food waste on the environment is greater than that of packaging. SoFresh Active Packaging provides a solution to this crisis.

By developing innovative technology in layered film structures using aroma barriers and embedded mould and microbial inhibitors, SoFresh was able to blanket the atmosphere around food to stop mould and microbial growth before it reaches critical levels. The result is a package that extends the shelf life of the product well past what is offered in the current market of food packaging.

GOLD WINNER: Unilever

Lightweight pillow Seda bottles made with 100% HDPE PCR

One of Unilever's sustainability goals is to increase their use of post-consumer recycled (PCR) content. Their Seda bottles help advance towards this goal by being comprised of 100% PCR HDPE. They were able to maintain the typical performance of virgin resin and meet the need to develop an extended range of 17 colour variations. In addition, there is an added benefit of PCR to provide savings in Brazil in comparison to virgin resin and carbon footprint reduction.

GOLD WINNER: Packaging Industries Limited, 260 Brands

Lightweight pillow pouch for Nutramilk soymilk

The primary purpose for this initiative was to provide a nutritious product to increase health, combat hunger and reduce food waste. 260 brands came together to develop Nutramilk Soymilk, produced using non-GMO soybean from Zambia and designed to sustain a 3-month shelf life.

Packaging for this product needed to support the extended shelf life and withstand conditions to reach developing communities. The solution was lightweight pillow pouches made with high-performance polymers to achieve excellent mechanical performance and high-barrier EVOH resins to support the extended shelf life.

The packaging has been designed to transport and store without refrigeration, overcoming cold chain logistics challenges that many developing countries face. It is locally recyclable, and its design allows for the transport of up to 40% more units per truck.

GOLD WINNER: Folmex, Nestlé Purina

Matte-finish 100% polyethylene lamination for pet food packaging

Nestle Purina wanted to differentiate itself with matte-finish packaging for its 10kg and up quantities, while preserving manufacturing productivity and maintaining a single-polymer lamination to make its package technically recyclable.

The proposed, validated and adopted matte-finish, 100% polyethylene (PE) lamination, tackled the different requirements by carefully selecting the right mix of additives and resins.

Ensuring the quality of the pet food throughout the supply chain and its promised shelf life – 18 months – was also crucial. To protect the product a specific plastomer was incorporated into the film formulation to enable optimal hermetic seals to avoid product decomposition and/or biological contamination. The package communicates to the consumer that it is "Designed to be Recycled" and directs them to a website to learn how to do so.

GOLD WINNER: Constantia Flexibles, Olam International

Recyclable packaging for nuts

Constantia Flexibles, in collaboration with Olam International (Olam), developed a 100% recyclable polyethene (PE) packaging solution for direct dry food contact application. This packaging solution is being used for Olam's new direct-to-consumer (D2C) nuts branded Re-.

This mono-polymer packaging structure was developed using Constantia Flexibles' EcoLam High Plus packaging solution to improve sustainability without compromising on important performanceproperties, such as aesthetics, printing quality, barrier requirements, easy precision tear and a premium paper-like feel-good finish. This packaging solution also reduces carbon footprint by approximately 32% in comparison to multi-material structures.

GOLD WINNER: Fuseneo

Occo Recyclable Spice Pods

Occo serves as a resource to declutter kitchens, reduce waste and get people excited about spices and cooking. The single-serving aluminium pods are grouped and placed into cardboard cards that look akin to birthday cards or tiny books.

Occo's unique form-fill-seal process was developed for their miniature thin-walled pods. A hemmed edge on stamped aluminium pods was designed to give additional structure to the lightweight shell. In addition, a gas-flush process combined with an all-aluminium structure was used to create an optimal barrier.

The empty pods can be easily crushed and dropped into an aluminium can and simply tossed into your curbside aluminium recycling. The card deck packaging is 100% curbside recyclable and comes printed with a QR code that provides the consumer with recipe cards and spice descriptions.

GOLD WINNER: Sonoco Products Company

EnviroServe™ Leafy Greens PET trays with SmartSeal® FRESH lidding films

Snoco's EnviroServe™ Leafy Greens PET Trays use a minimum of 25% less packaging than traditional clamshells, and an average of 70% post-consumer recycled (PCR) content, primarily produced from recycled water bottles.

Their SmartSeal® FRESH lidding film makes the package easy for consumers to use, reseal and reopen their produce packaging. The lidding film also provides tamper-evidence, high-impact graphics, and extended shelf-life without the need for a secondary label to be applied.

SILVER WINNER: Imballaggio

Hexabag+ 2-in-1 valve bag

Hexabag+ by Imballaggio is a 2-in-1 valve bag solution featuring a paper valve bag on the outside and a plastic valve bag on the inside. It combines the best attributes of paper – handling and stability – with the best attributes of plastic – greater protection.

This 2-in-1 valve bag is intended for industrial packaging for a clean room environment that operates with automatic baggers. The first version of Hexabag had a paper laminated with aluminium, but its use was restricted to production lines that had x-rays, and most customers have metal detectors.

The bags can be easily separated, which helps those who need to ensure no external contaminants are transferred along with the content to the production rooms, and it facilitates recyclability.

SILVER WINNER: ProAmpac, Purition

Active ProActive recyclable paper sachet for Purition single-serve nutritional powder

Purition partnered with ProAmpac to transition their single-serve nutritional powder from a multi-layer structure to a recyclable sachet. By using ProAmpac's ProActive Recyclable® paper sachet, Purition were able to advance their environmental mission by providing consumers with a curbside recyclable package. The innovative paper sachet offers equitable barrier properties to Purition's multi-layer predecessor, while gaining recyclability and downgauging the material required in the final package.

Additionally, Purition's single-serve sachets are digitally printed to smoothly translate the brand identity to the new structure with minimal adjustments.

Purition's branding focuses on demonstrating their environmental mission by using earth-tones and minimalism, further enhanced by the natural feel of the paper structure.

SILVER WINNER: Emami Agrotech Ltd., Mantra, XPRT

Bag-in-box with zip lock (BIBZip)

Emami Agrotech Ltd (EAL) introduced a first-of-its-kind concept in India with their Bag-in-Box (BIB) with Zip Lock, also known as BIBZip. This was launched for a range of blended spices by the brand Mantra.

Consumer research indicated that a resealable feature was desired for blended powder spice packaging. Due to the highly competitive nature of the spice market, cost is very stringent. A centre seal pouch produced using vertical form-fill-seal (VFFS) is typically the most economical, while zip lock is one of the most effective and affordable resealable options. This led EAL to attempt to unify both elements.

The adopted technology of VFFS machine with automatic online zip applicator offers an effective and economical solution. One that delivers consumers packaging that keeps the product fresh and enhances their experience.

SILVER WINNER: The Kraft Heinz Company, Plastic Energy, SABIC, Berry Global, Tesco

Recyclable Heinz Beanz snap pots made with recycled plastics.

Heinz alongside its partners developed new packaging for Heinz Beanz Snap Pots made with 39% recycled plastic. This allows for improved sustainability while retaining what makes Heinz Beanz Snap Pots so popular with consumers: handy snappable format, microwave-ready and freshness retention. This packaging is made possible through advanced recycling.

Post-consumer soft plastic packaging is collected at Tesco stores and delivered to Plastic Energy, where it is converted into an oil feedstock. SABIC uses this circular feedstock to manufacture virgin-like, food-contact approved polymer pellets made with 39% recycled plastics based on a mass-balance approach endorsed by ISCC. At its ISCC-certified manufacturing site, Berry Global moulds the pellets into Snap Pots that Heinz fills with Beanz. After use, the Snap Pots can be recycled through curbside collection. By diverting, recovering, and upcycling plastics that would have otherwise been sent to landfill or incineration, we are working towards our common goal of promoting a circular economy.

SILVER WINNER: Constantia Flexibles

Recyclable matte-finish transparent pouches for tea

Constantia Flexibles developed recyclable matte-finish transparent pouches for tea. This design shifts away from biaxially-oriented polyethylene terephthalate (BoPET) to a mono-material machine directional oriented (MDO) polyethylene (PE) allowing for recycling.

MDO PE offers a high moisture and oxygen barrier to protect the aroma and moisture loss.

Constantia Flexibles achieved a wrinkle-free sealing area which improves the aesthetics of the finished product and reduces laminate wastage. The pouches were also designed to provide consumers with a transparent window and an easy tear experience.

SILVER WINNER: Amcor Flexibles & Gualapack, Danoninho

Danoninho ice yogurt pouch with convertible design for liquid or frozen consumption

Danoninho relaunched their yogurt brand Ice in Brazil, which features yogurt that can be enjoyed liquid or frozen. Amcor Flexibles developed a unique pouch that is convertible depending on how the consumer chooses to enjoy the yogurt. The top of the pouch has a spout that is used to drink the yogurt as a liquid. The bottom of the pouch features two notches and a laser cut so the consumer can tear it off and enjoy the yogurt as an ice pop.

SILVER WINNER: Graham Packaging, Danone

Recyclable and label-less Danacol bottle

Graham Packaging's customer Danone redesigned its iconic Danacol bottle helping advance Graham towards their aim for 100% of their packaging to be recyclable, reusable or compostable by 2025. To do this, the PET plastic label has been eliminated from the Danacol bottle, replaced with an embossing on the bottle itself. This not only improves its recyclability, but also reduces the overall amount of plastic used per bottle by 0.72 grams, creating an annual saving of 130,000kg of plastic.

To maintain the quality of the product, the bottle has been given opacity and colour to prevent light from affecting it. Instead of the label, it has opted to add both the logo and the brand's slogan. In addition, the lids are colour coded to differentiate flavours.

SILVER WINNER: Sonoco, Nestlé USA

Natural CPET tray with PCR

Nestlé USA and Sonoco collaborated to commercialize an unpigmented, often called natural, PET tray to advance the sustainability of this traditional package for chilled and frozen prepared foods. Black or dark coloured plastics are challenging to recycle in the current infrastructure. This is because of their inherent ability to absorb light, which sometimes prevents successful detection with today's sorting technology utilized in many material recovery facilities throughout the US.

The Stouffer's natural PET tray contains 30% post-consumer recycled (PCR) resin and are recyclable.

Using today's recycling rate for PET thermoforms, Sonoco estimates the conversion to unpigmented trays could have an annual climate change avoidance of 432,000kg CO2 eq.

SILVER WINNER: Amcor, Copperprotek

LifeSpan copper-based film

Working with CopperProtek, Amcor developed a novel smart packaging design with copper microparticles added to the resin in the film production, allowing the packaging to inherit the copper properties and therefore reduce the development of microorganisms inside the packaging. Defending against bacteria and fungus development this smart packaging helps extend shelf life by an additional week, even for fresh products such as bacon.